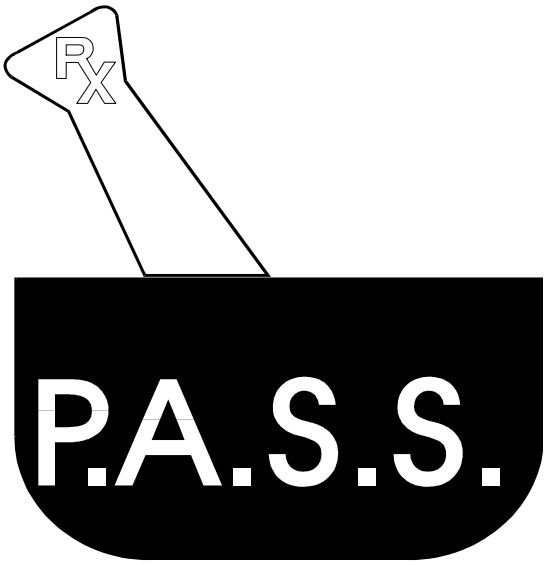

PRESCRIPTION ANALYSIS SOFTWARE SYSTEM

USER MANUAL

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C.A. No. HRN-5974-A-00-2059-00

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Table Of Contents

ABOUT THIS MANUAL

This manual is designed to serve as a training guide and a reference manual for anyone using the PASS program. For the learner, the basic commands and procedures for each option are explained step by step. For the experienced user, the manual has bold headings for referencing the PASS procedures or commands discussed within each section. Answers to specific questions or steps for a particular procedure can easily be located by looking up the key word in the index. Concepts unique to PASS and instructions on data interpretation are presented throughout the manual, and can also be found in the Glossary.

Important PASS features are covered in summary sections:

1. key PASS concepts and terms in Chapter 1;
2. command keys in Chapter 3, Section 3.3;
3. survey data procedures in Appendix C;
4. a sample listing of all PASS reports and appropriate criteria in Chapter 6; and
5. a step-by-step tutorial in Chapter 9.

In each chapter on PASS options, all data entry information is described in detail.

Throughout the manual, arrow brackets are used to notate computer keystrokes. For example, <ENTER> means you should press the Return or Enter key on your keyboard. <PgDn> refers to the Page Down key. The key names that are used correspond to those printed on your keyboard. To activate some PASS functions or options, you may either:

- type the first letter of the command;
- highlight the function and press <ENTER>; or,
- if using a mouse, click on the function.

Since any one of these actions can be used to access the function, the term ***select*** will be used throughout the manual to indicate that any one of the above actions may be performed. Whenever possible, the manual has used PASS notations, so that what you see in the manual corresponds to what you see on your screen. See Chapter 3 for more details on key commands.

As you read through this manual you will see three icons: the Note icon, the Hint icon, and the Warning icon. These icons are used to point out special information.

1. The Note icon is used to point out additional information that may prove helpful while using the program.

2. The Hint icon is used to provide alternate ways of performing a task or completing a process.

3. The Warning icon is used to alert the user to potential problems. Pay close attention to your data or system and information marked with this icon.

HARDWARE/SOFTWARE SYSTEM REQUIREMENTS

Hardware

- 100% compatible IBM Computers (XT, AT, 386, 486).
- 640 K RAM.
- 1 floppy disk drive (3.5" or 5.25"), either low- or high-density.
- 1 hard disk with at least 40 MB of available space. However, if the Tender option is used, an 80-MB hard disk is recommended. (To run the reports, you will need at least 640 K of free disk space on your hard disk while PASS is operating.)
- A device such as an Uninterruptable Power Supply (UPS) is highly recommended to protect the system from surges and power failures.

Printer

- A dot matrix EPSON or IBM compatible printer.
- The report generator supports a laser printer as well.

Software

- MS-DOS Operating System, Version 5.0 or higher.
- A disk cache such as SMARTDRIVE.

Optional Hardware/Software

- Mouse

Recommended Hardware Configuration

- 100% Compatible Intel 486 PC
- 4 MB RAM (4096 K)
- 120 MB Hard Disk
- SVGA (Super Video Graphics Array) Monitor

CHAPTER 1

INTRODUCTION TO PASS

1.0 INTRODUCTION TO PASS

1.1 PASS Concepts and Overview

PASS is a system for collecting and analyzing data on drug prescriptions. This software system provides users with different methodologies for collecting data on the diagnosis and treatment of samples of patient encounters for any criterion or category. PASS organizes the data into database files and produces standard reports. This guide provides users with the information they require for using the system.

PASS is intended to improve the analysis process by allowing the user to manage three types of operations properly:

- developing and maintaining reference and validation data files;
- using PASS's Survey Data to record patient encounter information; and
- generating reports.

Most developing countries have adopted case management policies for various health problems based on World Health Organization (WHO) guidelines. Despite years of promotion, health care providers frequently do not follow these guidelines. The PASS program allows program managers to analyze treatment patterns for various health-related problems efficiently, identify problem practices, and plan appropriate interventions.

Health care may be provided by a range of personnel, including doctors, paramedical staff, community-based workers, and retail drug sellers. The drugs these providers prescribe and dispense are an important index of the quality of care they deliver. The capacity to analyze prescribing data efficiently and make quantitative summaries of prevailing practices is one key to evaluating quality of care and intervening to improve it.

Policy makers and managers wishing to make improvements have a number of options for influencing practice in both the public and private sectors. However, the best strategies for intervention will vary from setting to setting, depending on the audiences of care providers to be reached, and the resources available. Whatever the intervention attempted, there are three needs that are constant:

1. *Identifying the prescribing behaviors to change*. This is done by taking product-specific measures and baselines of practice from both intervention and control groups prior to intervention. Clarity about the products and quantities given is essential for formulating effective messages for change.

2. *Assessing the extent to which change takes place*. Properly evaluating the effectiveness of any intervention requires taking a second, or post-intervention, measure in both the intervention and control groups. Comparisons with the baselines determine whether or not the intervention has been effective.

3. *Periodic monitoring of the status of problem behaviors*. Once interventions have been tested and identified as effective strategies for change, they must be systematically applied. Bringing about lasting change requires periodic monitoring of drug use practices and periodic reapplication of effective strategies.

PASS is the tool that both managers and researchers will be able to use to help meet all of these needs.

Implementing a Survey with PASS

The PASS Prescription Analysis Program is a user-friendly relational database program. All predefined reports have been developed with R&R Report Writer Version 6. PASS maintains diagnosis and treatment information of all patient encounters included in your prescription analysis survey. A relational database program like PASS allows you to manipulate, combine, and extract information from multiple database files. The process is similar to using a manual information system that contains several different records or files. When you want to get information from a file cabinet, you go to the cabinet, remove or copy the information needed, and then use the information to develop a report on prescribing practices in your region.

PASS performs very similar work, except that all of the information is managed by your computer. PASS transfers, copies, and reports the information you need. One significant advantage of PASS is that it can look at many different files at the same time, pulling only the needed information from each and combining the data for you to view on the computer screen or to print as a report.

Files, Records, and Fields

PASS uses multiple database files to store all necessary information about your survey. These database files are like long lists. Each list contains similar information. For example, the Providers Database contains a listing of all health care providers being included in the survey.

Each database file is made up of records, one for each item in the file. In each database file, the records are organized like those in a spreadsheet. Each record resembles a row in the spreadsheet.

All records are composed of data fields, which are like the blanks that must be filled in on a form or the cells in the row of a spreadsheet. Each step in using PASS requires entering data into a field that is part of a record stored in a database file.

Developing a PASS survey application

The ways the PASS system will be used will vary from setting to setting. The nature and scope of an application will depend on many factors, including the information needs of health managers at a given point in time, the record systems in the health facilities to be studied, the types of providers whose behavior is to be studied, and the resources available to carry out the work.

The first step in designing a PASS survey is to specify its objectives clearly. Based on the level of detail of these objectives and the nature and size of the samples required, the design of the sampling process and the complexity of analysis of the resulting data can vary greatly. Think of the sample in a prescribing analysis as a collection of:

- Health care providers – Prescribing is done by individuals such as physicians, nurses, paramedics, pharmacists, or drug sellers. It would be helpful to know important background characteristics of the individual providers included in the sample and to examine provider-specific differences in treatment patterns.

- Health facilities and their locations – Prescribing can take place in a variety of health facilities such as hospitals, health centers, or drug retail outlets. Again, depending on study objectives, a sample can be drawn from health facilities of a single type or from different types of facilities. In addition, the sample may include different regions or districts, or all facilities may be within a single region.

- Patient encounters – PASS collects data for individual treatment episodes between patients and providers. There are always multiple encounters collected from each health care facility in the sample, and usually within each facility, a number of the encounters will have been treated by each individual health provider.

Once a decision is made about the specifics of the survey, the next major step is to customize the PASS program to match your specific needs. This requires setting or resetting the PASS survey constants or creating a new survey data file. For example, when setting up PASS, you will note which patient encounter age groups will be included in the survey analysis. Also, for each survey being conducted, you will specify what criteria or categories will be studied and identify which prescription drugs will be included in the analysis.

Extracting and Using PASS Information

The real value of PASS is its ability to generate information that you can use to make decisions to determine intervention methods.

PASS allows you to generate a standard series of reports that provide information on:

- describing current treatment practices,
- comparing the performance of regions or health facilities,
- monitoring or supervising specific drug use behaviors, and
- assessing the impact of interventions.

These reports can be generated at any time using PASS's optional report procedures.

Users should decide which PASS reports should be distributed to the various health care officials. PASS reports can also be used to develop newsletters or bulletins that can improve relations with, and enhance the effectiveness of, health workers in the public health care system.

It is not always necessary to run a full report to get quick information about a particular survey. You will discover that PASS provides information on several data forms in the program. This information includes the total number of encounters, diagnosed problems, drugs prescribed, and types of drugs prescribed. You can always get a print-out of this information by printing the screen.

Units of Measurement in PASS

Entering drug data can be a difficult and exacting task for those not familiar with the terminology. Before beginning this task, it will be helpful to understand a few conventions that PASS uses to identify drugs. The following table lists the major drug terms used by PASS, along with definitions and examples of each term.

TERM	MEANING IN PASS	EXAMPLES
Generic drugs	Drugs that are named according to their chemical constituents and usually sold off patent.	Paracetamol, trimethoprim sulfamethoxazole, hydrochlorothiazide
Branded drugs	Drugs that are named by a proprietary trade name and usually sold on patent.	Pen●Vee K and Veetids are branded forms of generic penicillin v potassium.
Route of delivery	Route through which the drug enters the body.	PO, inj, top, opht, rect, inh, iv, vag, ent
Basic unit	Volume (or sometimes size) units in which a given drug is usually measured.	mg, ml, g, tab, vial, amp, supp, dose, pess
Strength unit	The units in which the strength of a particular drug is usually measured.	mg, ml, IU, %
Strength	Concentration of active ingredients as measured by the number of strength units per each basic unit.	250 mg/ml injection, 500-mg tablet, 3% ophthalmic solution
Drug code	Code that uniquely identifies a particular product name, strength, and route of delivery.	AMP250T might be used as a code to represent ampicillin 250-mg tablets.
Generic equivalents	Drugs that are identical in chemical constituents, route of delivery, and strength, regardless of their generic or branded status.	Pen●Vee K 250 mg tablets and penicillin v potassium 250 mg tablets are generic equivalents.
Therapeutic class	Theoretical groupings of related drugs, usually ones used to treat similar conditions or containing related chemical constituents.	Penicillins, beta blockers, benzodiazapines
Dispensing unit	The measuring unit that describes how the basic units of a drug are customarily dispensed to the patient.	Tablets are usually dispensed as tablets, while liquids may be dispensed either as milliliters or bottles. Other dispensing units include amp, vial, tube, jar, kg, inhaler, and applicator.
Drug quantity	For an individual encounter, the number of dispensing units of a drug prescribed or dispensed.	24 paracetamol tablets prescribed; 6 sachets of ORS dispensed
Order unit	The volume unit in which a drug is customarily ordered or purchased by a facility.	Bottle of pills; carton of ampules
Drug cost per order unit	Average amount paid for each order unit of a particular drug, where the average applies to all facilities in a study.	On average during the past 2 years, a facility paid $2.88 per bottle of 1,000 paracetamol 100-mg tablets.
Basic units per dispensing unit, dispensing units per order unit	Two measures required to convert costs from cost per order unit to cost per basic unit.	Paracetamol in 1,000-tablet bottles has 1 basic unit per dispensing unit, and 1,000 dispensing units per order unit.
Drug cost per basic unit	The average cost across all facilities of each basic unit of a drug, which can be used by PASS to calculate the cost of treatment.	Bottles of 1,000 paracetamol tablets purchased for $2.88 cost $0.00288 per basic unit.

1.2 The PASS Main Menu

The PASS Prescription Analysis system has five options that are displayed on the Main Menu when you activate the program. Figure 1.1 is a reproduction of the PASS Main Menu. These options cover all of the principal PASS functions needed to conduct an analysis survey. To exit the Main Menu and the program, press the <ESC> key and choose *Yes* at the exit prompt.

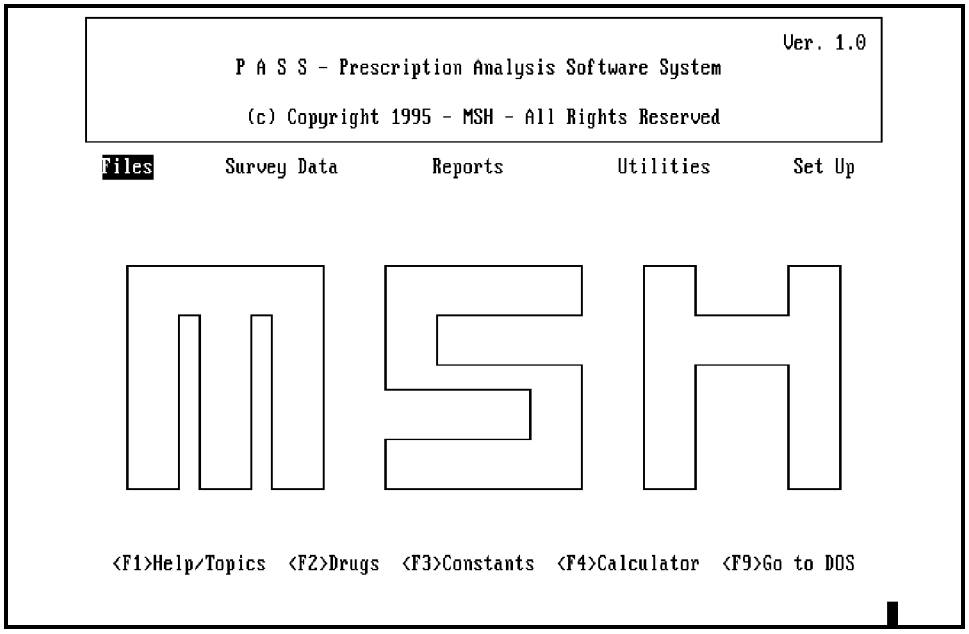


Figure 1.1

PASS Files Options

1. Providers

The Providers Database is used to construct and maintain a list of all health care professionals providing treatment for the specific category being studied. This database contains information about the provider's specialty or area of concentration and any additional training the provider may have received. Chapter 4, Section 4.1, describes all the information needed to build the Providers Database.

2. Locations

The Locations Database contains information about all health care facilities where treatment of patients has occurred. Chapter 4, Section 4.2, describes all the information needed to build the Locations Database.

3. Drugs

This database provides a master list of drugs. This list should include all possible prescription drugs that may be used to treat the health problem being studied. PASS comes with a standard drug list; however, you may add any items not included in the default list. Chapter 4, Section 4.3, describes all the information needed to build the Drugs Database.

Survey Data Option

This option contains a database file listing all surveys being studied and linked to other files containing information about all drugs and encounters associated with each analysis survey. The majority of information from reports will come from this option, so it is very important to enter data correctly when using this option. All encounter information will be stored using this option. See Chapter 5 Section 5.3, for detailed information.

Reports Option

PASS can generate a series of standard reports based on information entered in the main database files. These reports can be further customized using the *Interactive Report* option. See Chapter 6.

Utilities Option

This option is used to maintain and update the PASS system files and environment. The following is a list of features available under the Utilities option. See Chapter 7 for detailed information.

1. Reindex Files

This option allows you to reset the system after power failures by reindexing database files.

2. Color Setup

If you are using a color monitor, this option allows you to set your own screen colors.

3. Screen Savers

This option allows you to set up your screen saver options. The selections made here will become effective immediately and will be activated after a maximum of 5 minutes without keyboard activity.

4. Backup Files

As a safety precaution, the system allows you to copy pertinent files over to a diskette, so that, in the event of a system failure, your data will be saved.

5. Restore Files

This feature allows you to copy files stored on a backup diskette onto the computer hard drive. This is helpful when recovering from a system failure.

Setup Option

1. Survey Constants

This feature is used prior to setting up an analysis survey. The options selected here will affect all surveys conducted after changes are made. This option establishes defaults for the survey procedures such as date format, currency codes, and age groups being studied. See Chapter 8, Section 8.1, for detailed information.

2. Validation Files

This option allows you to build a database dictionary of various abbreviations and codes used throughout the PASS system. These dictionaries consist of terms common to your facility for describing data such as drug strengths, dosage forms, provider types, and locations types. The information in these database files is available from a pop-up browse window whenever necessary. See Chapter 8 Section 8.2 for detailed information.

INSTALLATION AND SETUP

2.0 INSTALLATION AND SETUP

This chapter outlines the requirements for installing PASS and briefly explains how to install and set up the program.

The system configuration file should be properly configured before starting the installation process. Your computer uses a system configuration file (CONFIG.SYS) to load any necessary system configuration parameters. This file can be viewed or changed using the DOS line editor EDLIN or the DOS text editor program EDIT. In order for PASS to run properly, make sure the following parameters are entered in the file.

CONFIG.SYS

files = 75
buffers = 20

The parameters entered in the CONFIG.SYS file control how many files PASS (and any other program) can have open at one time. This file specification must be set to a minimum of 75. PASS uses many database files and needs to have enough room available to open all the necessary files.

Remember, if you change your CONFIG.SYS file, you must reboot the computer (i.e., turn it off and back on again) before continuing the installation process, so that your changes will be effective.

2.1 Installation Procedure

To install PASS, complete the following steps:

1. Create a directory named PASS by typing "MD PASS" at the DOS prompt (C:\>) on the hard disk of your computer (for simplicity, the following discussion assumes that the C drive is being used). Change to your new directory by typing CD\PASS at the C:\> prompt and press <ENTER>. The computer will give you a new prompt: C:\PASS>.

2. Place the PASS diskette into your floppy drive, and type A:INSTALL, where A is the letter of the floppy drive. The automatic installation process will copy all necessary files to your hard drive. Follow any additional instructions that appear on your screen during the installation process.

2.2 PASS System Files

PASS consists of several program and database files. In addition, certain files are needed to run reports using the Runtime Version of R&R Relational Report Writer. The following tables list all the files necessary to run PASS, as well as the R&R program.

PASS DATABASE FILES

AD_RRUN.DBF	CURRNCY.DBF	PROVIDE.DBF
AD_RRUN2.DBF	DOSE_U.DBF	ROUTE.DBF
AREA.DBF	DRUGLIS.DBF	SPECIALT.DBF
ATC_CLAS.DBF	EZB1.DBF	STATE. DBF
BASIC_U.DBF	EZB2.DBF	SURVEY.DBF
BRAND.DBF	ICD9.DBF	SURVEY.DBT
CONTACT.DBF	ISSUNIT.DBF	SYSTEM.DBF
CONTDRUG.DBF	LEVEL.DBF	THERA.DBF
CONTPROB.DBF	LOCATIO.DBF	TRAININ.DBF
COUNT_U.DBF	PRODUCT.DBF	VFORM.DBF
CRITERIA.DBF	PROTYPE.DBF	WHOCLASS.DBF

PASS PROGRAM FILES

PASS.EXE
PASS.OVL
PASS.INI
PASS.CNF
PASSHELP.DBF
PASSHELP.DBT

PASS REPORT WRITER FILES

RR.CNF
RRPRINT.CNF
RRPASS.DBF
RRUN.EXE
RRUNP.EXE
RRSETUP.EXE
RR.UDF
PASS.RP1
PASSEVAL.RP1

2.3 Configuring Report Writer

For the reports to run, the R&R Report Writer file (RR.CNF) must be configured according to the location of the PASS files and the printer in use. To do this, type

```
CD\PASS
C:\PASS> RRSETUP
```

and press <ENTER>. Using the space bar, move to CONFIGURATION and press <ENTER>. Select RR.CNF from the list of configuration files, then DEFAULTS from the subsequent menu options. Select the first item in the list and press <ENTER>. Type in the directory and subdirectory of the specified files (C:\PASS for example). Repeat this for the next two lines. Press <ESC> and select Printers from the main menu. To set up your primary printer, select Printer 1 Type - and choose the printer type from the available pop-up menu. Complete the printer setup by choosing the proper interface settings and customized options (if needed). Press <ESC> to return to the main menu, and choose Save to save your configuration. Select *Quit* to leave configuration and choose *Exit* to return to the DOS prompt.

COMMANDS AND FUNCTIONS

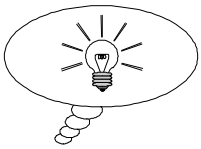
3.0 COMMANDS AND FUNCTIONS

This chapter describes the basic commands and functions needed to operate the PASS program properly. Most of the commands discussed in this chapter can be used throughout the PASS system.

3.1 Starting PASS

Make sure that the program has been installed in a subdirectory called PASS (see Section 2.1 for the Installation Procedure). At the DOS prompt, type CD\PASS and press <ENTER>. Then at the C:\PASS> prompt, type <PASS> and press <ENTER>. The software development information page will be displayed, followed by the PASS Main Menu.

The first time you run PASS, a message will appear on screen prompting you to generate some necessary index files. When this appears, answer *Yes* at the prompt.



To speed the process, create a batch file called P.BAT in the root directory that contains the following:

```
CD\PASS
PASS
CD\
```

Monochrome Display

If you wish to run PASS in monochrome mode, type <PASS M>. The program will be executed exactly the same; however, instead of having a color display, all screens will be in black and white only.

Updating and Indexing on Startup

If you wish to reindex all files prior to starting PASS, type <PASS U> at the DOS prompt. This option causes the system to update the file structure and reindex all system files. The PASS program will be executed after all files have been updated and indexed. This option should be used whenever the system has been abruptly halted, as in the case of a power outage.

PASS must be started from the directory where all the files are located. If not, you will be prompted to generate the necessary index files again. To avoid this problem, do not include the PASS directory in your path statement.

3.2 The PASS Window System

PASS is operated by successively activating windows for various steps in each PASS procedure. The window system is easy to use, and instructions about each window are clearly indicated on the screen. However, the system will be easier to use if you acquaint yourself with some basic commands and the various types of PASS windows: The Main Menu, Form Windows, Option Windows, and Browse Windows.

The Main Menu

The Main Menu displays the main options in PASS. This menu is the principal link between the different PASS options and procedures. There are several ways to access the options on the Main Menu:

1. Type the first letter of the option you want to use.
2. Use the arrow keys to highlight the desired option and press <ENTER>.
3. If available, use a mouse to click on the desired option.

Form Window

A form window is a screen version of a form containing the information that you need to manage successfully survey information such as data on drugs, health care providers, facility locations, and patient encounters. You will use these form windows to enter, modify, and view information in PASS.

The data presented in these form windows can be divided into two types: Data that can be added or modified by you, and data that are generated by PASS. For some of the data fields, information is entered first by you, but becomes unchangeable after PASS has processed it. Other form windows contain only PASS-generated data, while still others contain only data entered by you. Some form windows provide access to other windows and screens, including secondary form windows.

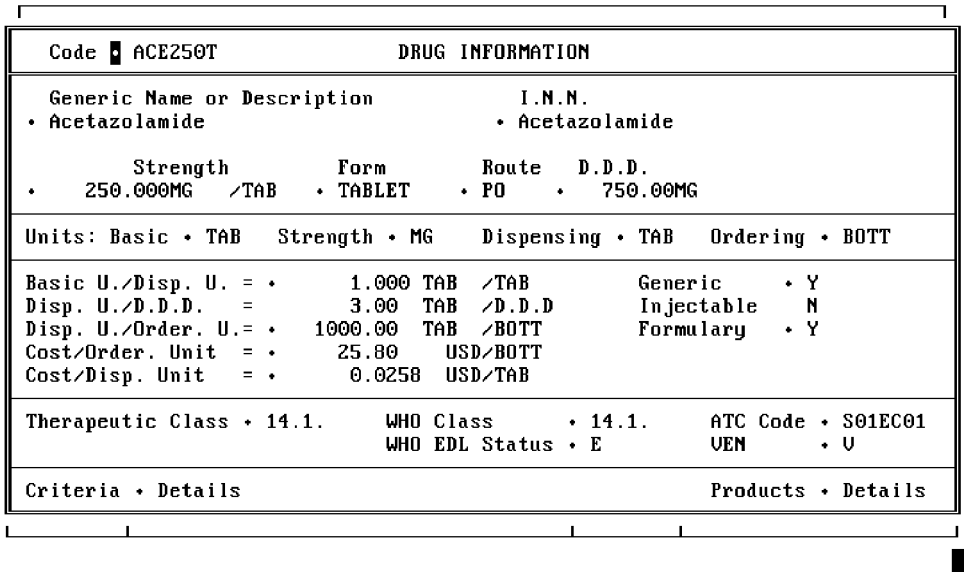


Figure 3.1 Sample Form Window

Option Window

An option window links one window with another or one activity with another by giving you a choice of all possible options. For example, when you are entering data in the Drug Information form window, an option window will give you the choice to *Accept*, *Retry*, or *Cancel* changes made to the form before allowing you to access the drug Criteria subwindow. This type of option window is standard throughout PASS and will be displayed whenever such a choice needs to be made.

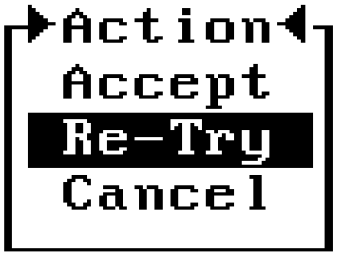


Figure 3.2 Option Window

Browse Windows

There are three types of browse windows in PASS. These windows provide immediate access to master files as well as some small database files from several places in PASS.

At different stages during PASS procedure, you will need to call up information from your master lists of Providers, Locations, Drugs, or Validation files. You may either type in the code or use a pop-up browse window. This browse window is available whenever data are to be entered from any of the main validation files. To access the pop-up browse window, select the data field and press <ENTER> (the field must be empty to access the browse window). Once you have located the desired data, highlight and select it with your keyboard or mouse. By doing this, you instruct PASS to enter the data from this window into the blank data field.

<PgUp>	Moves the cursor up one screen in the file.
<PgDn>	Moves the cursor down one screen in the file.
<Home>	Moves the cursor to the top of the list.
<End>	Moves the cursor to the end of the list.

Your mouse may also be used to scroll through all the information in a browse window. See Section 3.5 for instructions on using the mouse to scroll in a browse window.

The second type of browse window provides a link to another window (usually a form window) based on options selected from the browse window. These windows usually provide quick access to certain information, as well as detailed information by an attached form window. For example, the Encounters Details field, located in the Survey Information form window, displays a browse window when accessed. This window provides information at a glance about the patient encounters being included in the survey. Selecting a particular encounter from this browse window will cause another form window to be displayed that provides detailed information about the encounter, including the diagnosed problems and prescribed drugs.

The third type of browse window, called a custom browse window, displays all the information in a single record. The left side of the screen contains a scrollable list of all the items in the database, and the right side displays all the information in the database about each item.

Some browse windows contain additional information not readily seen when accessed. These additional columns may be accessed by using the left and right arrows (←,→) to "pan" back and forth through the window.

Use the following commands to find a record through a browse window (for some browse windows, there may be additional options; these will be indicated at the bottom of your screen).

Sorting: Each database file that you access through a browse window will be sorted by one of the key fields. Usually, files are sorted by the name of the item to make it easier to locate records. A few are sorted by code where this is appropriate. In most browse windows, PASS gives you the option of resorting the file by another key. If the list is sorted by name, you can usually resort the list by code. **In PASS, the <F10> key (view options) allows you to change the sort order**. This key activates an option window allowing you to choose your sort criteria.

Searching for records: PASS allows you to search for a particular item automatically whenever you enter a browse window. If available, PASS will display a search code field at the bottom of your screen for you to enter the search criteria. If your list is sorted by name, PASS can locate any name you enter in the search field. If your list is sorted by code, it will locate any code in the database.

If your list is sorted by name, you can type the first letter or the first two letters of a name and PASS will reposition the cursor at the first record in the list beginning with that/those letter(s). Similarly, if the list is sorted by code, typing the first or first two numbers of the code will reposition the cursor at the first code starting with that/those number(s).

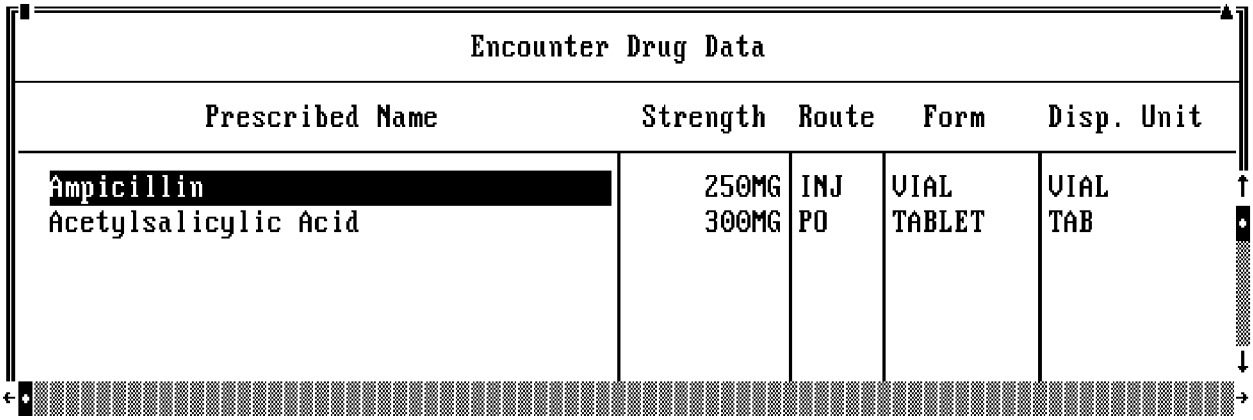


Figure 3.3 Sample Browse Window

3.2.1 Browse Window Menu Options

There are two menus available when using the browse window (except the custom browse). The first is ALT – (press the ALT key and the minus key at the same time), and the second is the <F10> key. The following is a discussion of all options available when these keys are pressed.

<ALT – >

This hot key will bring up a window control menu with the following choices:

Split Window This option separates the screen into two windows. The one on the left will be a miniature version of the regular browse screen. The screen on the right will show all fields for the record that is currently highlighted in the left window. Only the first 22 fields in the record will show. To return the screen to the original view, type ALT –, and choose return from the control menu.

Size Window To change the size of the screen, place the mouse cursor on any corner and drag the screen, or use the arrow keys to change the location of the active corner. The active "move" corner can be changed with the TAB key. To activate your new screen size, simply press enter, and the browse window will be displayed in the new size.

Move Window This only works if the browse screen does not fill the monitor screen. Use either the mouse on the top screen line or the arrow keys to move. Press <ENTER> when the window is at the desired location.

Minimize If you have maximized the browse window, this will shrink it back down to "half screen."

Maximize Make the browse window fill the entire screen.

Change Border Change the border around the browse window from a thin line to a thick line, or vice versa.

Restore Restore the original browse window. That is, the default browse window before you resized, maximized, or changed your screen layout.

Close Close the browse window.

The changes made using this option are only active for the current session. If you wish to make any window changes permanent, use the *Save* option in the F10 menu (see next section).

<F10>

This key displays a menu of operations that can be performed in the browse window. This menu may also be activated by clicking the left mouse button in the title area of the browse window.

The highlighted column in the browse window is the column you are currently operating on when you "freeze" or "move."

The following operations will be available:

Select Order This option will allow you to change the field on which the browse screen is ordered. A list of available fields will be displayed. You cannot alter the list of fields.

Locate Locate a specific record based on the content of the current field. The following list appears:

Is equal to
Is not equal to
Is less than
Is less than or equal to
Is greater than
Is greater than or equal to
Contains
Does not contain
Sounds like

Select a criteria type and enter a value upon which to base your search in the highlighted field. In the case of "Sounds like," a best attempt will be made to locate a record that is close to your spelling, but there are no guarantees.

Next Locate This will locate the next record that matches the criteria specified in the previous Locate.

Scan

This will search through the selected field for records matching your specified criteria. To begin the scan process, position the highlight bar in one of the columns in the browse window prior to pressing F10. Press F10, then Scan, then select a specific criteria, Existing or New.

Existing means a previously run and saved scan. Scans are saved only for the duration of the current program session and are lost once you exit the program.

When you choose New, a window appears with the same choices as Locate. Choose a criteria such as "Is greater than." The search prompt at the bottom of the screen activates "Greater than _____." Type in a value. A window appears asking you which index to activate for this scan and lists all the available indices (the same indices that appear when you choose "Select Order." Select an index. Scan tells you how many records it found matching the Scan/Locate criteria, then asks you if you want to save this list. If you say yes, you can recall the same scan list later. Scan then brings up a "Go to" window (a list) of all the records that matched the scan criteria. Point to one (use mouse or cursor). Scan scrolls the browse to that record.

If you Saved the scan, then choose Scan again later using F10, and then choose Existing, a window will pop up listing all the saved scans. Pick one, and the "Go to" window reappears, listing all the scan criteria matches.

Freeze Column

This will allow you to specify that any field you select will stay on the display screen as you pan left and right through the fields.

Unfreeze Column

This will undo the previous freeze, and the frozen field will become unfrozen (move off the screen as you pan left or right).

Move Column(s)

Move the position of a field relative to the other fields. For example, make column 1 be column 3. This is useful if you want to have two columns displayed at the same time, but their natural order does not permit viewing at the same time. To return the screen to its original format, choose Restore from the ALT - menu.

Column Width

Change the display width of a column. A small box appears that says "Arrow keys adjust column width (nn)" where nn is the current width. Use the left and right arrow keys to change the width. When you are satisfied, press Enter and answer "Y" if you want to save the change.

Save Window

Save the browse screen after you have moved columns, frozen columns, resized the browse window, moved the browse window, etc. The next time you reenter the browse, it will return to the "saved" browse setup.

3.3 Standard PASS Commands and Functions

Moving between Windows

The escape key (<ESC>) will take you back to the previous window displayed on your screen. If you are entering or editing data and you wish to save and return to the previous window, pressing the <ESC> key will activate an option window prompting you to *Accept*, *Retry*, or *Cancel* your changes.

Editing Fields

Movement from field to field may be controlled either by the arrow keys (↑,↓,←,→) or by using a mouse to click on each field.

In form windows, fields are identified either by an arrow (**44**▸) or by a bullet (●) preceding the field. If you are using a mouse, the fields will be marked with the bullets. PASS will automatically detect if you have a mouse driver activated on your system and will display your form windows accordingly.

Within a selected field, move the cursor using the left and right arrow keys (←,→). The <Home> key will place the cursor at the beginning of a field, while the <End> key places the cursor at the end of a field. If you have entered the wrong information into a field, you can correct it by returning to the field and deleting the information using <Del> or <BKSP>. Then, you can type the correct information into the field. Additional editing functions are listed in the table below.

KEY	ACTION
CONTROL ←	Moves cursor back one word .
CONTROL → or CONTROL D	Moves cursor forward one word.
CONTROL T	Deletes word or characters to the left of the cursor.
CONTROL U	Clears field of any editing changes, leaving original data.
CONTROL V	Turns Insert Mode on/off.
CONTROL Y	Deletes from cursor position to end of line.

Saving Windows

After you have added or changed any data in a form window, PASS will automatically activate the "Action" option window. If you wish to save your changes, select *Accept*. PASS will save any changes you made in that window and then complete your next key command. For example, if you make changes to the Drug Information form window and press <ESC> to return to the main Drug List window, PASS will activate the "Action" option box. If you choose *Accept*, PASS will save your changes and then return you to the Drug List browse window.

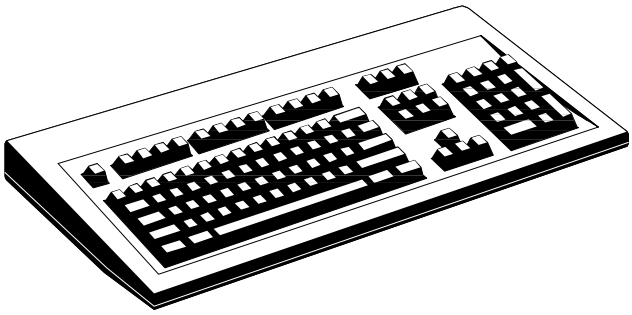
Dates

Dates are entered in the format you establish when you set up PASS. For example, if the format used is: "DD/MM/YY," you must always enter dates: day, month, year. **You must also include a leading zero when a month or day only has one character** (for example, the 1st of January, 1995, should be entered 01/01/95 and NOT 1/1/95).

To Exit

To exit PASS, return to the Main Menu and press <ESC>. An option window will appear asking if you want to exit the program. Select *Yes* or *No*. Selecting *No* will cause the program to return you to the main menu, while selecting *Yes* allows you to leave the program and return to the DOS prompt.

3.4 Basic Keyboard Commands



<ESC> Takes you back to the previous window or step.

<F1> Key Activates an on-line, context-sensitive help screen. To receive help on a selected field or within a particular window, press the <F1> key. Help information on that field or window will appear on the screen. For a list of Help Topics, press <F1> twice.

<F2> Key Used as a "hot key" to gain immediate access to the master Drug List while in any other screen in PASS.

<F3> Key Used as a "hot key" to gain immediate access to the Surveys' Constants setup screen while in any other screen in PASS.

<F4> Key Displays a calculator that can be used in any window in PASS.

<F9> Key Used to gain temporary access to DOS while still running PASS. When pressed, PASS will temporarily close, giving you access to DOS. To return to PASS, type EXIT at the DOS prompt. The shell allows you to execute other DOS commands or applications if enough memory is available.

<F10> Key Used to activate a browse window view option menu. See Section 3.2.1 for details.

Arrow Keys

Right (→): Moves one space to the right within a selected data field or moves to the next data field when *No* field is selected. **In a browse window,** use this key to "pan" right to display any additional data in the window.

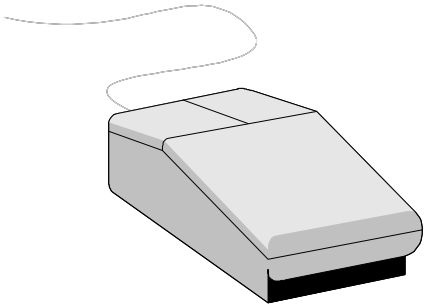
Left (←): Moves one space to the left within a data field or moves to the next data field when *No* field is selected. **In a browse window,** use this key to "pan" left to review any additional data in the window.

Up (↑): Moves up to the preceding data field.

	Down (↓): Moves down to the next data field.
<Home>	**In a form window:** Moves to the first editable field at the top of the screen.
	In a browse window: Moves the selection bar to the first item in the database file.
	Within a selected field: Moves the cursor to the first character in the field.
<End>	In a form window: Moves to the last editable field at the bottom of the screen.
	In a browse window: Moves the selection bar to the last item in the database file.
	Within a selected field: Moves the cursor to the last character in the field.
<Ins>	**In a browse window:** Use this key to add new items to the database file. For example, you may use the <Ins> key to add a new provider while in the main Providers browse window. Pressing the <Ins> key will activate a blank form window that will be used to hold information about the new item.
<Del>	**In a browse window:** Use this key to remove any items from the database file. For example, you may use the <Del> key to remove an option from the list in a validation file.
<Ctrl><Home>	**In a form window:** Use this key combination to display data for the first item in the database file.
<Ctrl><End>	**In a form window:** Use this key combination to display data for the last item in the database file.
<Ctrl><PgUp>	**In a form window:** Use this key combination to display data for the previous item in the database file.
<Ctrl><PgDn>	**In a form window:** Use this key combination to display data for the next item in the database file.

3.5 Basic Mouse Techniques

Mouse Buttons



Click - Quickly press and release the mouse button.

Left Clicking the left mouse button:

In any field of a record in the browse screen will select that record for editing.

Anywhere in the title line of the browse window is the same as pressing the<F10> hot key.

On the tiny square in the upper left corner of the browse window is the same as pressing ALT -.

On the tiny triangle in the upper right corner of the browse window will force the browse window to occupy the "full screen" or shrink it back down to its default size.

On the browse window border will allow you to move the browse window (drag the browse).

Right Clicking the right mouse button will close the browse window. This has the same effect as pressing the <ESC> key.

Your Mouse may also be used to scroll through all the information in a browse window. You may use the following techniques to scroll.

To scroll	**Do the following**
One line up/down	Click the up or down scroll arrow.
Continuously	Point and hold down the left mouse button until the information you want comes into view.
One screen	Click the scroll bar above or below the scroll box on vertical scroll bars.
Pan left/right	Click the scroll bar to the left or right of the scroll box on horizontal scroll bars.

3.6 R&R Report Writer Screen Display Commands

PASS uses R&R Report Writer to create reports and can display them on the screen. For printed reports, all you have to do is specify the printer you are using.

For screen displays, however, there are a few R&R Report Writer commands that you can use to make viewing your report easier. These commands are printed and explained at the bottom of your screen as you view the report.

If you select *Display* as your destination output, your report will be displayed on your screen. Once the report has been generated, the first screen of the report will be displayed on your screen. Most reports and forms are wider than the width of your video display (80 characters), so you will only see a portion of the report. The R&R screen commands will help you view the remainder of your report. The following is a description of each command.

(L) Line Typing <L> will move the report down one line.

(S) Screen Typing <S> will move the report down one screen.

(P) Pan Typing <P> allows you to move your screen to the left and right using your arrow keys (←,→). This enables you to view any portion of the report not currently displayed on the screen.

(W) Window Using this command, you can divide your screen into two windows, allowing you to see different parts of the page at the same time. For example, while viewing a wide report where the first column is a list of item names, you may want to keep the items in a window on the left of your screen as you pan over to the right to view the rest of the information. Doing this will make it easier to see which other information on the report corresponds with the particular item.

To split the screen into two windows, type <W>. There are three additional choices:

(S) Split: Splits the screen into two windows. When you choose this option, you will use your arrow keys (↑,↓,←,→) to set the size of the windows.
(C)Clear: Restores a split screen to one window.
(P) Pan: Allows you to move around either window. The <F6> key lets you move from one window to the next.

<C> Continuous Typing <C> will cause the report to scroll without stopping. You may hit the <ESC> key to pause scrolling.

(R) Restart Typing <R> will restart the report from the beginning.

(Q) Quit Typing <Q> will exit the report and take you back to your previous PASS screen.

In addition to the screen commands, you can use the up and down arrow keys (↑ ↓) to move the report up or down one line at a time.

CHAPTER 4

FILES

4.0 FILES

As stated in Chapter 1, the Files option is used to access the three main database files used by PASS. These files are used to store reference information that will be used during the survey. The three main database files under the File Menu are Providers, Locations, and Drugs. The database files are maintained by adding, deleting, and updating existing information. The tutorial section of this manual will take you through the steps of creating and building the three master files.

Since PASS is a relational database application, it uses data found in the three master files to standardize the analysis process. After collecting data for your survey, PASS allows you to generate special reports that will aid in analyzing treatment patterns. These reports may be customized based on the information entered in the three master files.

The following is a description of each of the three master files.

4.1 Providers

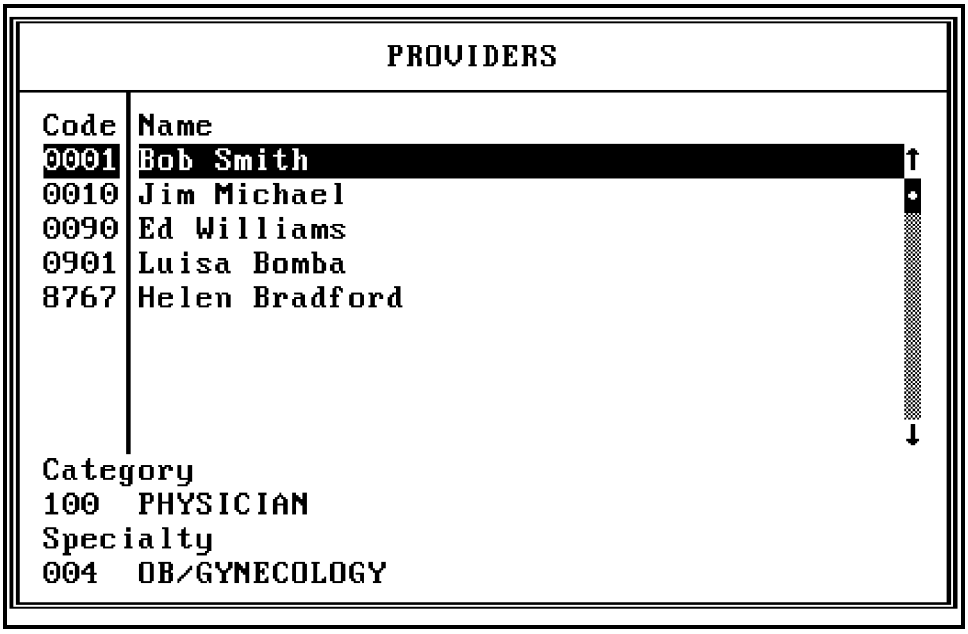


Figure 4.1 Providers Main Screen

The Providers database file is used to store information about each health care provider in the surveys. One record is created for each provider, and the information entered here will be linked to the Survey Data file. PASS associates each patient (encounter) with a health care provider. This allows the researcher to identify prescribing patterns by health care providers; therefore, no duplicate providers should be entered.

To access the list of providers, select *Providers* from the Files menu. The main Providers window will be displayed. This window displays the provider ID code . This code is assigned by the user and is unique to each provider used in the survey. The provider's full name is also displayed as well as other speciality descriptive information that may be used to further categorize each provider. From this screen, you can add or delete providers, search for a specific provider, or simply view information about a provider. To edit a provider record, highlight the desired provider and press the <ENTER> key. The Provider Information window will be displayed.

4.1.1 Summary of Commands

Adding a Provider

As discussed in Chapter 3, use the <Ins> key if you wish to add a new provider to the database. Before adding a new provider, check to make sure you are not creating a duplicate record. Although the system will check for duplicate ID numbers, it will not check for duplicate provider names.

Deleting a Provider

The <Del> key may be used to delete a provider from the main provider list. A provider can only be removed from the main screen if there are no encounters linked to the provider in the Survey Data file. Pressing the <Del> key in such a case will cause an option window to appear, asking you to confirm the removal of the provider. Once you select *Yes* to confirm the process, the provider ID, name, and additional information will be removed from the database.

View Option

The <F10> key is used to change the order in which items are displayed on the main screen. When you first access the Provider database, the providers are sorted by the code. If you wish to view the providers in order by their name, press <F10>, and an option window will appear. Choose the Providers name option and press <ENTER>. PASS will sort your list of Locations based on their names.

Moving between Records

You can move between records while within any form window by pressing <Ctrl><PgDn> or <Ctrl><PgUp>.

4.1.2 Provider Information Screen

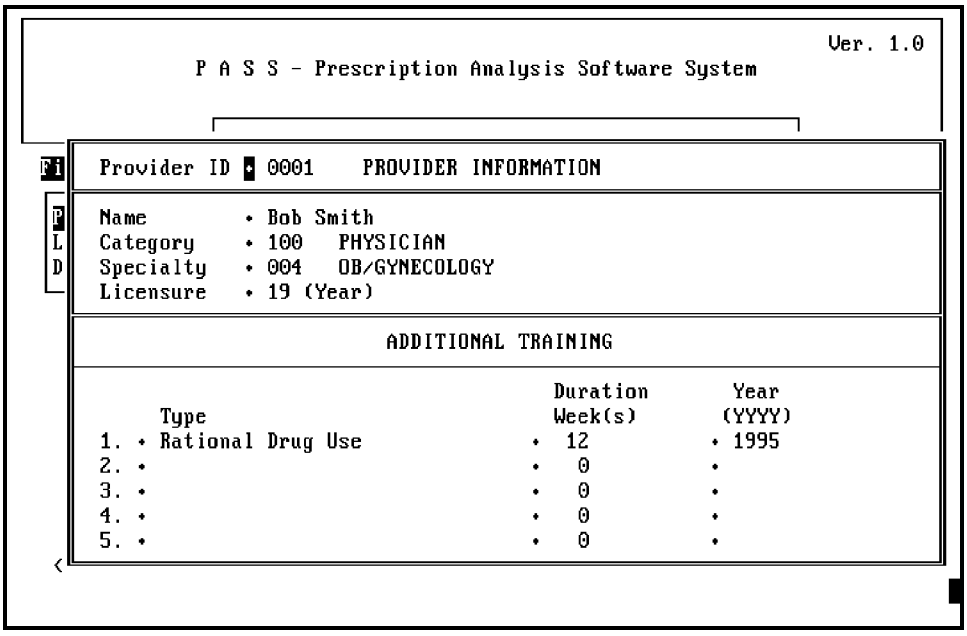


Figure 4.2 Provider Information Screen

The following is a discussion that presents all the data fields displayed in the Provider Information screen.

Provider ID The ID field is used as a unique identifier for each health care provider. Each provider must have a unique identification code. If a duplicate ID code is entered, PASS will not accept a second code, and will request another ID number to be entered. ID codes are alphanumeric, and can be up to four characters long.

Name The provider's first and last names.

Category This is a user-defined field that describes the type of provider. Examples for this field include *physician*, *nurse,* or *pharmacist*. This field is linked to the validation file Provider Type, which contains a unique code for each provider type.

Specialty This is also a user-defined field that describes the provider's area of concentration. For example, if the provider is a Doctor, his specialty might be obstetrics and gynecology, or internal medicine. This field is linked to the validation file Provider Specialty.

Licensure (Year) This field is used to indicate how long the provider has been licensed to practice in the specified category. This information should be entered in years.

The Additional Training section is used to specify any additional training or certifications the health care provider has received. Although these are optional fields, this information can prove to be helpful when assessing postintervention methods. The type and amount of additional training a particular provider has received usually have a direct impact on his or her prescribing behavior.

Type This field is used to describe the type of training the health care provider received.

Duration (Weeks) The number of weeks the training lasted is indicated here.

Year The year in which the training was completed.

4.2 Locations

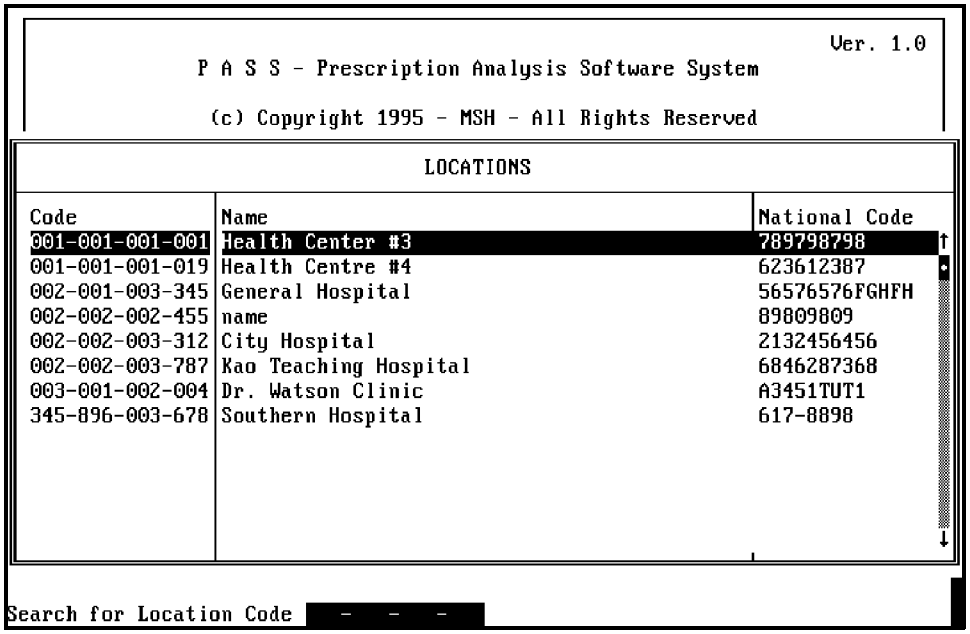


Figure 4.3 Location

The Locations database file is used to hold information about each of the facilities included in the survey. Each individual location is assigned a specific code, but the method used allows you to have multiple locations in a specific region or area. The information entered here is linked to the Survey Data file, again requiring that no duplicates be entered. Locations identify where patient encounters occurred.

To access the list of Locations, select *Locations* from the Files menu. The main Locations browse window will be displayed. The first column contains the Location Code. This code is assigned by the user and must be unique for each location used in the survey. The second column contains the Name of the location. The third column is used to specify the national code for the location. This field is optional, and is only used if there are national codes assigned to each location. From this screen, you can add or delete locations or search for a specific location. To edit a record, highlight the desired location and press the <ENTER> key. The Location Information window will be displayed. See Section 4.2.2 for details on the information in the window.

4.2.1 Summary of Commands

Adding a Location

As discussed in Chapter 3, use the <Ins> key if you wish to add a new location to the database. Before adding a new location, check to make sure you are not creating a duplicate record. Although PASS checks for duplicate Location codes, it does not check for duplicate names, so be sure you are not adding the same location with two different codes.

Deleting a Location

The <Del> key may be used to delete a location from the main location list. A location can only be removed from the main screen if there are no encounters linked to the location in the Survey Data file. Pressing the <Del> key in such a case will cause an option window to appear, asking you to confirm the removal of the location. Once you select *Yes* to confirm the process, the location code, name, and national code will be removed from the database.

View Options

The <F10> key is used to change the order in which items are displayed on the main screen. When you first access the Provider database, the providers are sorted by the code. If you wish to view the providers in order by their name, press <F10>, and an option window will appear. Choose the Providers name option and press <ENTER>. PASS will sort your list of Providers based on (1) Location Code, (2) Name, (3) National Code.

Moving between Records

You can move between records while within any form window by pressing <Ctrl><PgDn> or <Ctrl><PgUp>.

4.2.2 Location Information Screen

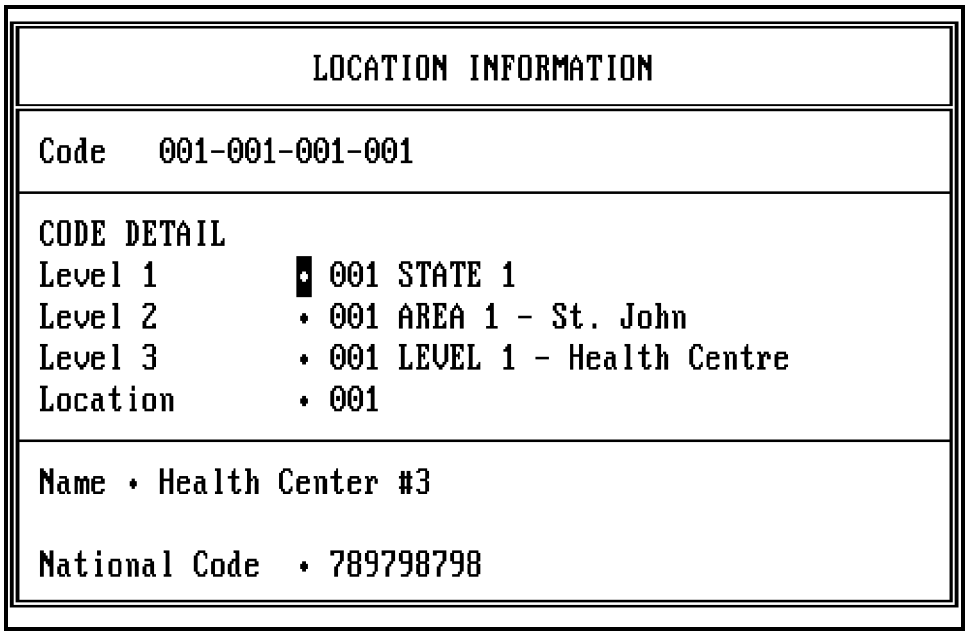


Figure 4.4 Location Information Screen

The following discussion presents all the data fields displayed in the Location Information screen.

Code This field displays the unique code for the specific location. Location codes are 12 (twelve) characters long, with sections corresponding to certain geographical areas or types of facilities. The location code is generated by data entered in the specific categories listed under Code Detail, below. Only changes made to the categories below will result in changes to the displayed code.

Code Detail:

Level 1 This field displays the code and corresponding name of the primary area in which the facility is located. This field is linked to the validation file Level 1. See Chapter 8 for details on this validation file.

Level 2 This field displays the code and corresponding name of the district or area in which the facility is located. This field is linked to the validation file Level 2. See Chapter 8 for details on this validation file.

Level 3 This field displays the code and corresponding name of the type of facility. This field is linked to the validation file Level 3. See

Chapter 8 for details on this validation file.

Location This field contains the code that corresponds to the actual location of the facility where the encounter occurred. Unlike the three previous fields, this field must be unique to each location included in the survey. For example, the survey may include encounters from two pharmacies in the same district. Up to this point, they would have the same location code; however, the last three characters of the code of each location would be different.

Name The name of the site corresponding to the code indicated in the above fields is entered here.

National Code If the location has been assigned a specific code by a governing agency, that information can be entered here.

4.3 Drugs

The Drugs database file is used to store data on drugs that may be prescribed by a particular provider in the survey. Each record provides information on a specific drug, including its generic/brand name or the description. The International Nonproprietary Name (INN) is also available. As with the two other master files, the information entered here will be linked to the Survey Data file; therefore, no duplicates should be entered. The system will check for duplicate items entered in the system; however, it will only detect those items that are an exact match. PASS has incorporated an initial drug list, but other drugs may be added to this list.

To access the drug list, select *Drugs* from the Files menu. The main drug list window will be displayed. This window is divided into three sections. The top section displays the code for the selected drug. The second section displays descriptive information about the drug, such as the strength and dosage form, and the bottom section of the screen is a browse window listing all drugs in the database. Information listed in the browse window includes a unique code for each drug, a one-line description of the drug, and the corresponding Therapeutic and ATC classification codes, if available. To change any information about a specific record, highlight the desired drug and press the <ENTER> key. The Drug Information screen will be displayed.

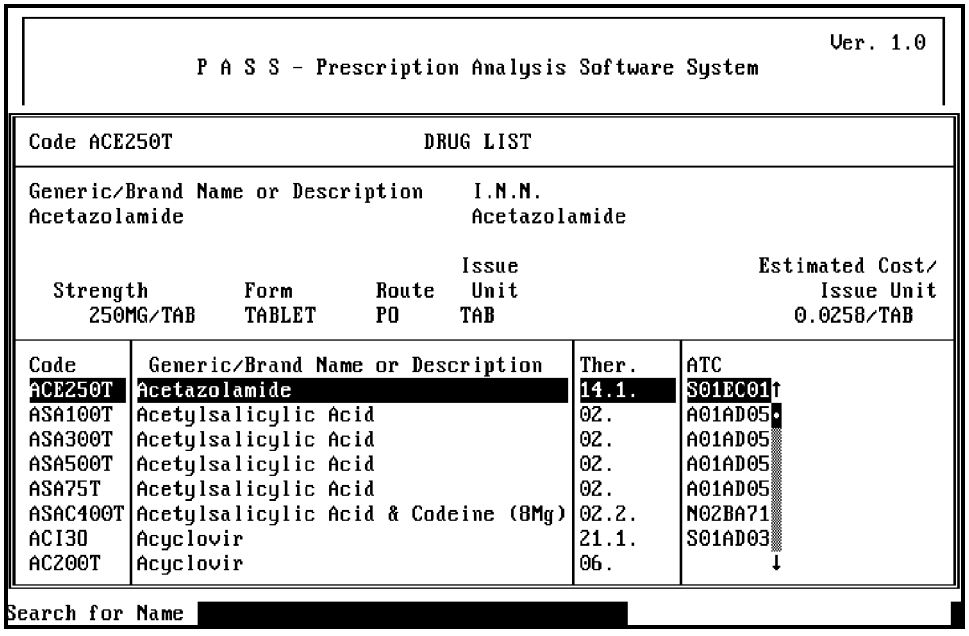


Figure 4.5 Main Drug Screen

4.3.1 Summary of Commands

Adding a Drug

As discussed in Chapter 3, use the <Ins> key if you wish to add a new drug to the database. Before adding a new drug, check to make sure you are not creating a duplicate record. Although PASS checks for duplicate Drug codes, it does not check for duplicate names, so be sure you are not adding the same drug with two different codes.

Deleting a Drug

The <Del> key may be used to delete a drug from the main Drug List. A drug can only be removed from the main screen if there are no encounters being treated with the drug in the Survey Data file. Pressing the <Del> key in such a case will cause an option window to appear, asking you to confirm the removal of the drug. Once you select *Yes* to confirm the process, the Drug Code and Name or Description code will be removed from the database.

View Options

The <F10> key may be used here to access the menu of operations that can be performed in this browse window. The only option available for the Drug List is the Select Order option. The Select Order option allows you to choose between the Drug Code, Therapeutic Class, Name, and ATC Code for a view order.

Moving between Records

You can move between records while within any form window by pressing <Ctrl><PgDn> or <Ctrl><PgUp>.

4.3.2 Drug Information Screen

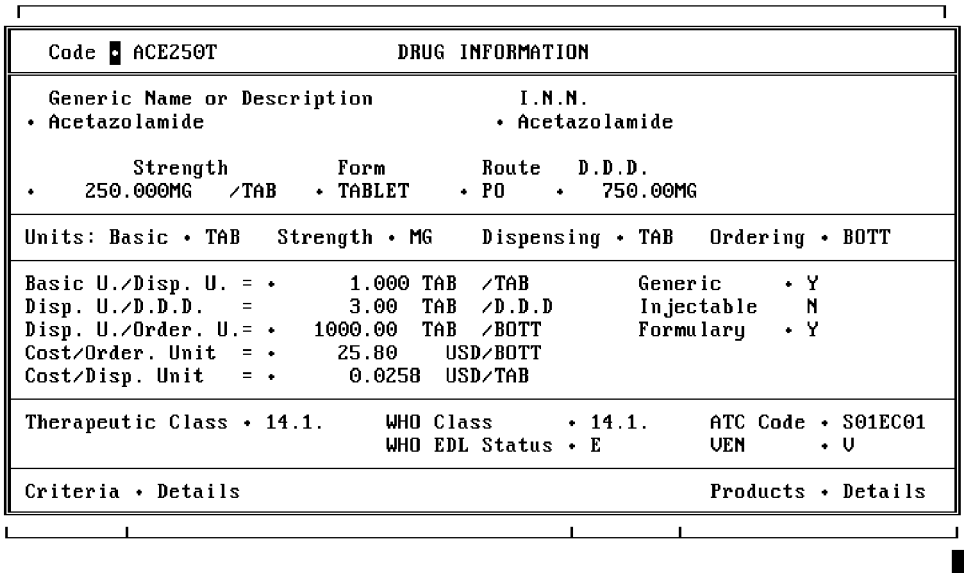


Figure 4.6 Drug Information Screen

The following is a discussion that presents all the data fields displayed in the Drug Information screen. *Italicized* fields contain PASS-calculated data; thus, the information is in display mode only, and cannot be edited.

Fields listed here are in the order in which they appear on the screen, and not in the order in which they may be edited.

Code The code field contains up to eight (8) characters used uniquely to identify one drug. PASS checks for duplicate codes, and will display a prompt if the code entered is currently being used.

Generic/Brand-Name Description This field contains the description or name of the drug. The information displayed in this field may include a common brand name such as Bayer or an accepted name such as acetaminophen.

INN The International Nonproprietary Name for the selected drug.

Strength This field displays the strength of the drug per basic unit and is usually

expressed in amounts such as grams (g), milligrams (mg), or micrograms (µg). The information displayed here is based on data entered in the Units section of this form window.

Form This field is used to indicate the dosage form of the drug. A browse window linked to the validation file Pharmaceutical Forms (see Chapter 8) can be used to enter the proper code for the form. For example, if the item is acetaminophen and it comes in tablet form, TAB should be displayed here.

Route The route is used to indicate the method of administration for the selected drug. This field is linked to the validation file Route of Administration (see Chapter 8). For example, tablets are typically administrated orally; therefore, the code would be PO.

D.D.D. The defined daily dose (DDD) is used to describe the average daily amount of a drug administered for the most common indication for which the drug is prescribed. The DDD is expressed in terms of the strength of the drug. For example, when prescribing acetaminophen at a DDD of two 250-mg tablets, the DDD must be expressed as 500 mg. The DDD is usually listed in milligrams or grams.

UNITS:

Basic The Basic Unit indicates the smallest unit in which a drug is produced or stocked. For example, acetaminophen is produced in tablet form. This field is linked to the validation file Basic Unit. See Chapter 8 for details and examples.

Strength This field is used to define the unit in which the strength of the drug is expressed. This field is linked to the validation file Strength Unit and determines the unit of measure specified in the Strength referenced above.

Dispensing This field indicates the standard unit in which a drug is given to the patient. For example, the dispensing unit for acetaminophen is a tablet.

Ordering This unit indicates the type of package in which the drugs are ordered. This field is linked to the validation file Ordering Units. See Chapter 8 for details on ordering units.

Basic Unit/ Dispensing Unit

This field indicates the number of Basic Units per Dispensing Unit. This number is always "1" where the Basic Unit and Dispensing Unit are the same. For example, the Basic Unit for acetaminophen is TAB and the Dispensing Unit is also TAB; therefore, this field would indicate 1. If, on the other hand, the basic unit for acetaminophen is 250 mg and the dispensing unit is TAB, then this field would indicate 250 mg/TAB.

Dispensing Unit/DDD

This is a calculated field based on the information entered in the DDD field and the Strength/field. PASS automatically calculates the Dispensing Unit per the DDD.

Dispensing Unit/Order Unit

This field is used to indicate the number of dispensing units in each Order Unit. For the example mentioned in the Ordering field, there are 1,000 tablets of acetaminophen in each bottle ordered.

Cost/Order Unit

The cost of each order unit of the drug. Be sure to convert currency to the proper code before entering cost. This information is used to calculate the unit cost for each drug prescribed and is used to analyze treatment cost.

Cost/Dispensing Unit

This is a calculated field based on the information entered in the above field. PASS automatically calculates the cost of each dispensing unit based on the number of units in the ordering unit and the cost for the ordering unit. Although this field is calculated by PASS, you may edit the field if necessary.

When working with a sample of patient encounters, there will sometimes be different prices for the same drug. In this case, two options are suggested:

1. Compute a weighted average cost taking into account the different prices for the specified drug. This would be appropriate when the prices of the different units vary greatly and the proportions of units of each product prescribed are similar.

2. Use the price of the drug prescribed most frequently, that is, use the mode in situations when the price differences between producers are not great and one product is issued in much greater proportion than the others.

Generic Product

This field is used to indicate whether the specific drug is a generic product. If the selected drug was added to the provided drug list and the generic/brand name is the same as the INN, then PASS assumes it is a generic product and the field will contain a Y.

Injectable If the Route of Administration for this drug is injectable, then PASS enters Y in this field.

Formulary This field tells whether the drug is listed on the national formulary. This information is optional and may be used to sort drugs when you generate reports.

Therapeutic Class If your country classifies drugs according to their therapeutic use, enter the specific class type for this item. When accessed, this field becomes a browse window showing the available class types from the validation file Therapeutic Class.

WHO Class This field is linked to the validation file WHO Therapeutic Classification. PASS comes with a version of the World Health Organization Therapeutic Categories installed.

WHO EDL Status This field is linked to an option box used to specify the status of the drug. The available options are: E, essential; EP, essential, but different presentation; C, complementary; CP, complementary, but different presentation; and N, not on the list.

ATC Code The ATC Class Code may be displayed here if used. The ATC (Anatomical Therapeutic Chemical) Classification is an international code maintained by the WHO. This field is linked to the validation file ATC Classification. The entire classification database is included with PASS. See Chapter 8 for details.

VEN This field may be used to sort items into *Vital*, *Essential*, and *Nonessential* categories for reporting purposes. When accessed, an option window is displayed listing the three category choices.

Criteria This field activates a browse window that allows you to specify whether any of the criteria/categories of a specific survey apply to the selected drug. See Section 4.3.3 for details.

Products This field activates a browse window which lists Brand name or alternative Drugs for the specific code. For details on a Product press <ENTER>. To add to the Product Database press <INS>.

4.3.3 Drug Criteria

The Drug Criteria/Categories Per Survey page is used to specify which drugs are to be included

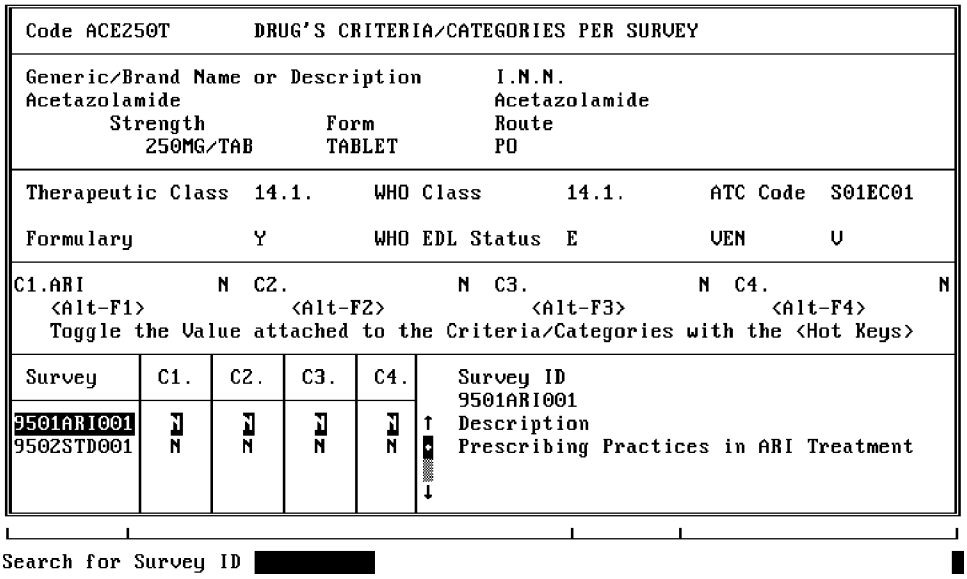


Figure 4.7 Drug's Criteria/Categories

in each survey. The first three sections of the screen display the information about the selected drug that was discussed in the previous section.

The fourth section of the Drug's Criteria page contains four (4) Criteria/Category fields. These fields are used to indicate whether the currently selected drug applies to a Criteria or Category being studied in the survey. The Criteria/Categories are numbered C1 to C4. To toggle between Y (Yes) and N (No) for any of the categories, hold down the <ALT> key and press the corresponding function key. For example, if you wished to change the C4 value from Y to N, the correct hot key sequence would be <ALT><F4>. This would cause the current value for C4 to change. The hot keys can only be used if a Criteria/Category has been defined for that number (C1–C4). If the value for the last Criteria/Category has been changed, the cursor will automatically go to the next drug.

The browse window portion of the page lists all surveys for which the selected drug has been included, and specifies for which of the criteria (C1–C4) the drug is used. To the right of the survey list, the system displays the Survey ID and the Description of the survey. To change the value of a particular Criteria/Category for any survey, press the <Enter> key, and the Drug's Criteria Window will be displayed.

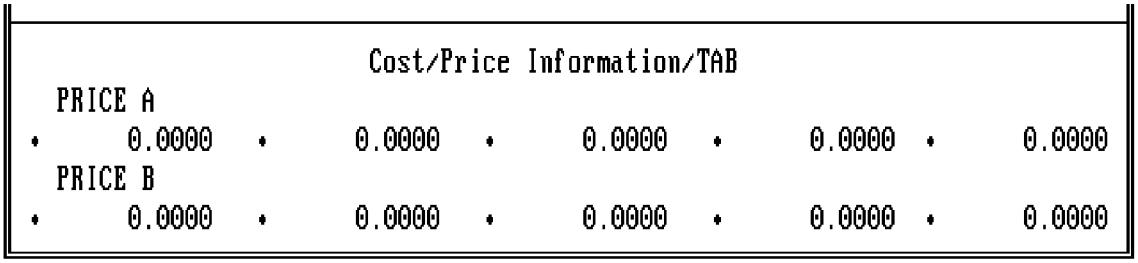


Figure 4.8 Drug Criteria - Cost/Price Information

Only the information in the last two sections of this window—Criteria/Categories for the selected survey and Cost Price Information—can be changed.

Criteria/Categories If you wish to change the value for any of the criteria (1–4) select the correct number, and enter Y. If no Criteria/Category has been established, then the field will not be available to edit. This information can also be entered from main Criteria/Categories screen.

Cost/Price Information This section allows you to enter up to 10 different prices for the selected drug. Each price applies to a specific option set up in the Constants of the Current Survey screen.

SURVEY DATA

5.0 SURVEY DATA

The Survey Data menu option is used in PASS to collect and store data about each prescription analysis survey being conducted. This option allows the data collection process to be carried out in an organized and standardized manner. All other PASS database files are linked in some way to the information entered here; therefore, it is extremely important to minimize errors and inefficiencies in the organization of the work.

When selected, the Survey Data menu option displays a browse window listing all previously conducted analysis surveys. This browse window lists the survey ID, first title of the survey, and all problems studied in the survey (pan right →). To view the detailed information about any survey, highlight the desired survey and press the <ENTER> key.

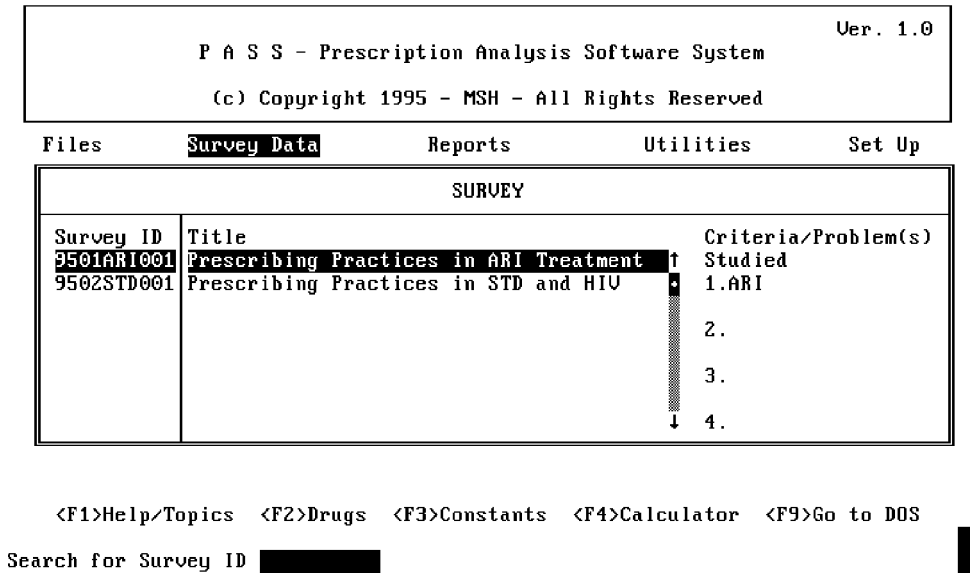


Figure 5.1 Main Survey Data Screen

5.1 Summary of Commands

Adding a Survey

Use the <Ins> key in any browse window if you wish to add a new item to the existing database. Before adding any new item, check to make sure you are not creating a duplicate record.

Deleting a Survey

The <Del> key may be used to delete an item from any of the browse windows in the Survey Data menu option. An item can only be removed from the main Survey Data screen if no encounters have been added to the selected survey database file. If such is the case for a Survey Data file, pressing the <Del> key will cause an option window to appear asking you to confirm the removal of the survey. Once you select *Yes* to confirm the process, the survey ID, name, and additional information will be removed from the database. For all other browse windows within a selected survey database file, there are no linked files that must first be deleted.

View Options

The <F10> key is used to change the order in which items are displayed on the main screen. When you first access the Survey database, the providers are sorted by the code. If you wish to view the providers in order by their name, press <F10>, and an option window will appear. Choose the Providers name option and press <ENTER>, PASS will sort your list of Surveys based on their names. The <F10> key is not available on the main survey Data Screen.

Moving between Records

You can move between records while within any form window by pressing <Ctrl><PgDn> or <Ctrl><PgUp>.

5.2 Survey Information Screen

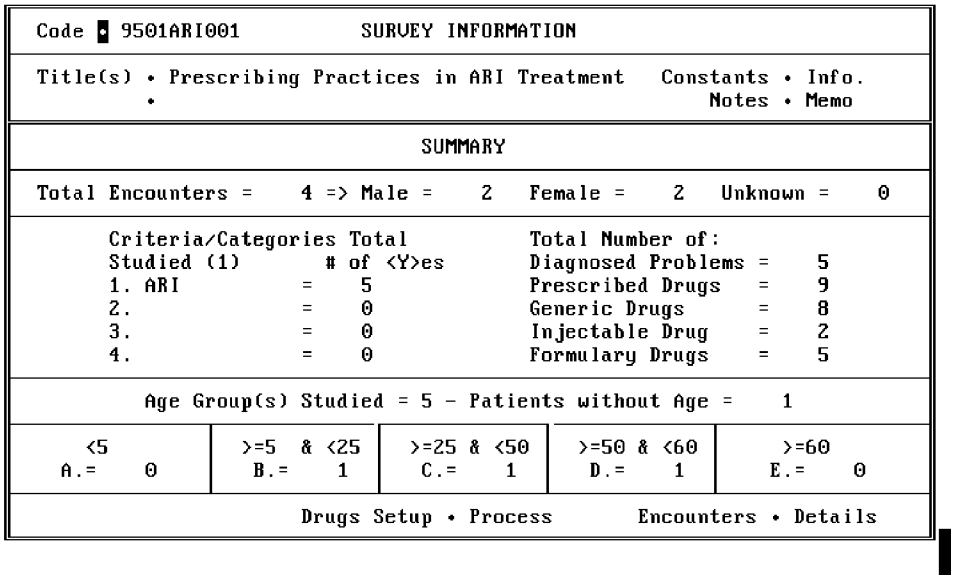


Figure 5.2 Survey Information Screen

The following is a discussion that presents all the data fields displayed in the Survey Information screen.

Code Each analysis survey must have a unique 10-digit alphanumeric code. If a duplicate code is entered, PASS will not accept the second code and will request another code be entered.

Title The name of the analysis survey is displayed here. The title actually consists of two lines that can be used to describe the survey further. Information such as the survey objectives and the nature and size of the survey may be entered in these fields. Each of the two fields will allow up to 40 characters, giving a total of 80 characters that can be used to describe the analysis survey.

Constants This field is used to access the Survey Constants for the current survey. See Section 5.2.1 for details.

Notes This field accesses a memo window that enables you to add additional comments regarding the current survey. After entering your notes, press the <ESC> key and choose *Accept* from the memo action box to save your notes.

Total Encounters Male/Female/ Unknown This field and the next three fields are PASS-calculated fields. Information displayed here is based on the total number of encounters (patients) included in the survey. These fields are in display mode only and are only changed when encounter information changes in the encounter window (see Section 5.3).

Criteria/Categories Studied Each survey may have up to four (4) criteria or categories that are being studied. The Problem/Category fields are set up in the Survey Constants menu (see Section 8.1) and cannot be changed here. PASS simply displays them here.

Total # of <Y>es This is a PASS-calculated field based on the total number of drugs prescribed that apply to each problem or category. For example, if one Problem/Category was Diarrhea and an encounter had been given hydroxyquinoline, an antidiarrheal drug, PASS would count this as a *Yes*. Keep in mind, the information displayed here is totaled based on data entered about all encounters, hence the importance of making sure that all information is correctly entered into the system.

Total Number of:
Diagnosed Problems This is a calculated field used to indicate the total number of diagnosed problems in the entire survey. For example, if you had three encounters, each with two diagnosed problems, PASS would indicate 6 in this field.

Prescribed Drugs This calculated field indicates the total number of drugs prescribed to all encounters in the survey. Continuing with the example above, if each encounter received one prescription drug, the total number of prescribed drugs would be 3.

Generic Drugs This calculated field indicates the total number of prescribed drugs that are generic products. PASS assumes a drug is generic if the INN is the same as the generic/brand name of the drug.

Injectable Drugs This calculated field indicates the total number of prescribed drugs among all encounters for which the route of administration is by injection.

Formulary Drugs This calculated field indicates the total number of prescribed drugs that are listed on the national formulary. The information is provided based on data found in the Drugs database file.

Age Group(s) Studied

This section of the screen displays the age groups that are being studied in this survey. This information is set up using the Survey Constants option or the Constants field discussed in 5.2.1. See Chapter 8 for details.

Drugs Setup

This field allows you to specify which drugs are to be included in the selected survey. Once the Criteria/Categories have been established, this process will display a Drug Information screen for each drug in the master drug database, allowing you to change the value for all Criteria/Categories for which the drug applies. This is an automatic process that requires completion before exiting. If you wish to skip a drug, simply press the <PGDN> key. Once the end of the database has been reached, the system will close the Drug Information screen and return you to the Survey Information window.

Encounters

Selecting this field causes an additional browse window to appear listing all encounters being included in the selected survey. See Section 5.3 for details.

5.2.1 Constants

This field is used to define information specific to the current survey. All information here can also be set up in the Surveys Constants (see Chapter 8). However, changes made here will only affect the current survey.

Criteria/Categories Studied Each survey may have up to four (4) criteria or categories that are being studied. The Criteria/Category fields are set up in the Survey Constants menu (see Section 8.1) and cannot be changed here. PASS simply displays them here.

Amount Prescribed Data Entry for the current survey diagnosed problems. If *Y* is entered, PASS will track the amount of each drug prescribed for all encounters in the current survey. If you do not wish to keep track of this information, enter *N*.

Prescribing Frequency If *Y* is entered, PASS will track the treatment intervals for each drug prescribed for all encounters in the current survey. If you do not wish to keep track of this information, enter *N*.

Number of Treatment Days If *Y* is entered, PASS will track the number of days for which each patient (encounter) must continue treatment for the prescribed drug. If you do not wish to keep track of this information, enter *N*.

Age Group(s) Studied Cost/Price information. This section of the screen allows you to set up as many as five different age groups that will be used to categorize all encounters. Each group (A–E) will cover a particular age range. Group A will include the lowest ages in your study. For example, if you wish to include only those encounters under the age of 25 for a particular survey or report, you might specify Group A to be < (less than) 25. All numbers are expressed in years. If you wish to be more specific, you may have several groups encompassing all ages from 1 to 25.

5.3 Encounter Information

Selecting Encounters from the Survey Information screen causes the browse window above to be displayed. This browse window displays the following information:

- Encounter ID
- Date
- Location
- Provider
- Age
- Sex

To obtain more detailed information about each encounter, highlight the desired patient encounter and press the <ENTER> key. This will cause the Encounter Information screen to be displayed. The following is a discussion of all fields presented in the Encounter Information screen, including any subwindows.

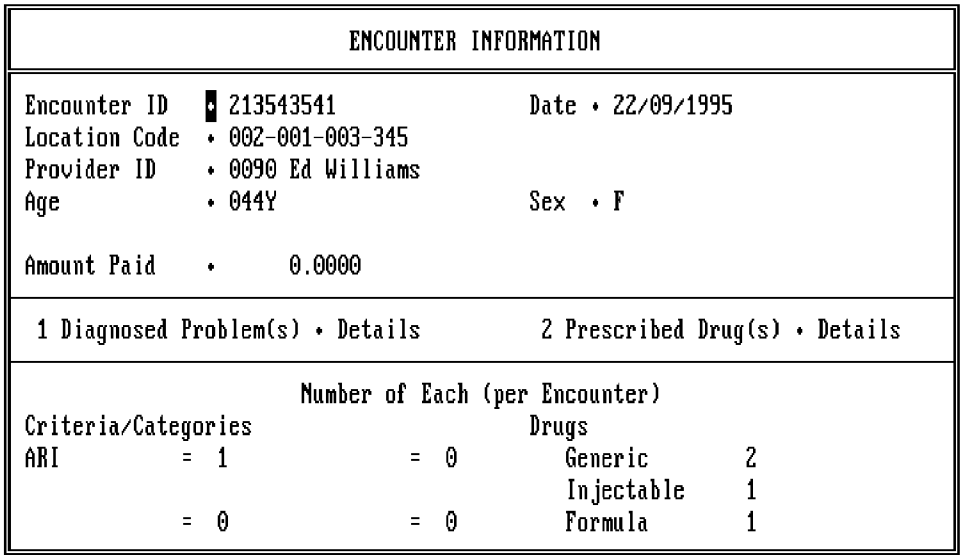


Figure 5.3 Encounter Information Screen

Encounter ID This is a unique code assigned to each patient being included in the survey. This field may be up to nine characters long.

Date This field indicates the date on which the patient encounter took place. PASS automatically enters the current date in this field; however, it may be edited if needed. The Date format is set up using options selected in the Survey Constants screen.

Location Code This field identifies the site at which the patient encounter occurred. This field is linked to the Locations database file under the Files menu and entries here must be listed in the file. If a location code is entered here that does not exist in the Locations database file, PASS will ask if you wish to add it to the list.

Provider ID This is the ID number and name of the health care provider who prescribes drugs to the selected patient. This field is linked to the Provider database file, and only entries existing there will be allowed here. If the provider is not listed in the Provider database file, the information may be added at this point.

Age The encounter's age is entered here in either months or years. The system accepts four (4) characters. The first three must be numerical and the last indicates Y for years, or M for months. For example, if the patient referenced is 2 years old, the field may read 002Y or 024M.

Sex The gender of the encounter. <F>emale, <M>ale, or <U>nknown are the only acceptable entries. This information is selected from an option box.

Amount Paid This field is used the track the total amount the patient was charged for the treatment. The figure represents the cost of all drugs prescribed.

Diagnosed Problems This field, when selected, displays a browse window that provides detailed information on the various problems diagnosed for the current encounter. See Section 5.3.1 for details.

Prescribed Drugs This field, when selected, displays a browse window that provides detailed information on the various drugs prescribed for the current encounter. See Section 5.3.2 for details.

Number of Each (per Encounter) The four remaining fields simply display the total number of drugs prescribed that apply to each Problem/Category in the survey. This number is totaled for the current encounter only.

5.3.1 Diagnosed Problems

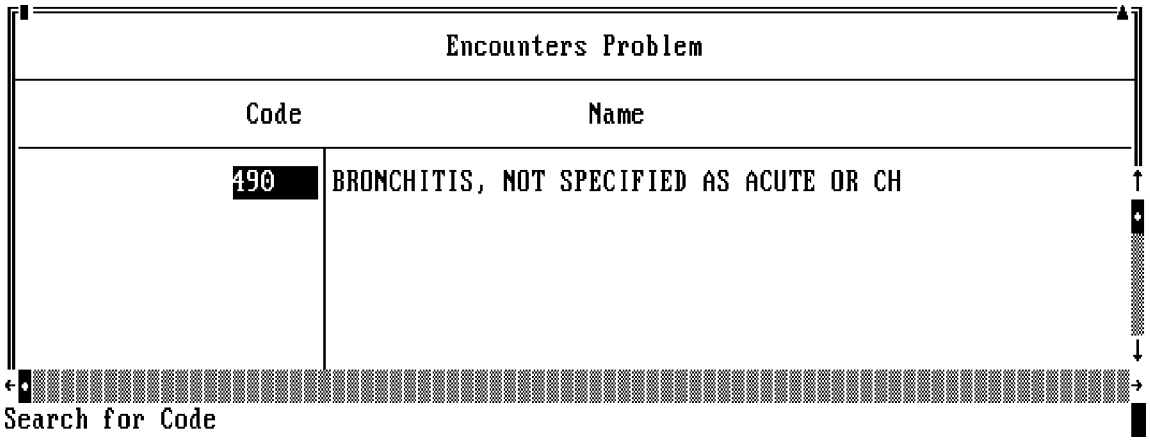


Figure 5.4 Encounters Problem

Selecting Diagnosed Problems from the Encounter Information screen causes the browse window above to be displayed. This browse window displays the Code and Name of the diagnosis for the encounter. Within this browse window, you may add or view the encounter's diagnosed problems or conditions. This information is linked to the validation file Problems. The two fields displayed here indicate the ICD-9 code and the name of the health problem or condition.

5.3.2 Prescribed Drugs

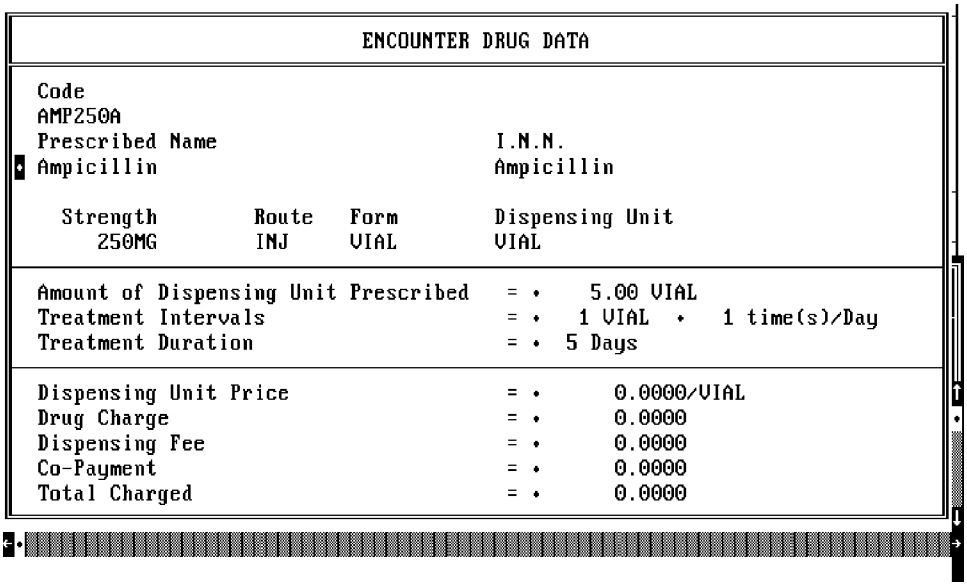


Figure 5.5 Encounter's Prescribed Drugs

Selecting Prescribed Drugs from the Encounter Information screen causes the browse window above to be displayed. This browse window displays the drug's name and dosage information. For more information about the encounter's drug treatment, highlight the desired drug and press the <ENTER> key. To add a newly prescribed drug to the existing list, press the <INS> key. The following is a description of the information displayed in the encounter's Drug screen.

Code The prescribed drug's unique code. This information is linked to the main Drugs database file in the Files menu.

Prescribed Name This field contains the description or name of the drug. This information is displayed only and cannot be edited here.

INN The International Nonproprietary Name for the selected drug.

Strength This field displays the strength of the drug prescribed for the encounter.

Route This indicates the method of administration of the selected drug.

Form This field is used to indicate the dosage form of the drug.

Dispensing This field indicates the standard unit in which a drug is dispensed to

the patient.

Amount of Dispensing Unit Prescribed This field indicates how much of the drug was given to the patient. The amount is specified in dispensing units. If using tablets, the number of tablets prescribed for the patient should be entered here.

Treatment Intervals There are two fields required to complete this information. The first indicates how many (in dispensing units) should be taken at each interval, and the second field indicates how many time(s)/day the drug should be taken.

Treatment Duration This final field indicates how long the treatment should last. For example, if 20 acetaminophen tablets were prescribed for the patient and the treatment intervals were 1 Tab, 2 times/day, the duration of this treatment would be 10 days.

Dispensing Unit Price This field is used to indicate the price per dispensing unit that the patient was charged

Drug Charge The total cost of the drug should be entered here.

Dispensing Fee If an additional dispensing fee is added to the cost of the drug, enter that amount here.

Co-Payment If the patient is part of a managed health care system and is required to make a small payment, enter that amount here.

Total Charged This field contains the total amount the patient was charged for the prescribed drug.

PASS REPORTS

6.0 PASS REPORTS

6.1 PASS Standard Reports

This option contains several standard reports to assist you while you conduct your prescription analysis. It is important to remember that, as good as this feature is, it can only generate reports based on the information entered. This makes it imperative that the information entered be correct and up-to-date.

The following briefly describes all the standard reports generated by PASS.

ABC Analysis - Summary for Survey

This report generates a list of all prescribed drugs, for the specified survey, according to their usage. Drugs used most frequently will be assigned as an A category, and drugs used the least assigned a C category. The information in this report is based on quantities prescribed, and the estimated cost of the drugs, and includes the drug code, generic name, strength, route, form, cost per issue unit, quantity dispensed, and total cost. Pass calculates the percent of the total cost, and the cumulative percent of the total cost and the number of items. All records in the specified survey are included in this report; however if you wish to narrow the scope of the report, you may use the interactive query mode. See Appendix C for details.

Drug Costs /Class/Product & Age

This report generates the total percentage of drug cost by age groups. Each drug is listed according to its therapeutic category. In addition, the route of administration for each drug and the average cost per patient, are also provided. All records in the specified survey are included in this report; however, if you wish to narrow the scope of the report, you may use the interactive query mode. See Appendix C for details.

Number RX/Product

This report generates a list of all drugs prescribed in this survey, and the number of prescriptions written for each drug. The information provided in this report includes the drug code, generic name, the strength of each drug, the route of administration, and the dosage form. PASS calculates the number of prescriptions for each product, the total generic products prescribed, and the total number of injectable drugs. All records in the specified survey are included in this report; however, if you wish to narrow the scope of the report, you may use the interactive query mode. See Appendix C for details.

Prescribing Practices - Level 1
This report provides a summary of prescribing practices for the region covered by Level 1.

Prescribing Practices - Level 2
This report provides a summary of prescribing practices for the region covered by Level 2.

Prescribing Practices - Level 3
This report provides a summary of prescribing practices for the region covered by Level 3.

Prescribing Practices - Locations
This report provides a summary of prescribing practices for each location in all regions.

The information in the above Prescribing Practices reports includes:

Total number of cases	Average # of drugs prescribed
% Females	% of cases requiring 4 or more drugs
% Under 5 years old	% of cases requiring injectable drugs
% Seen by a physician	% Using generic drugs
Average # of problems	% Using drugs on a Formulary
% of cases with 2 or more Problems	% With the criteria(s) being studied

Prescribing Practices - Summary
This report provides a summary of the prescribing practices for all encounters in the specified survey. The information in this report lists the total number of encounters, their age distribution, the number of problems per encounter, the average number of drugs per encounter, and the total number of drugs. All records in the specified survey are included in this report; however, if you wish to narrow the scope of the report, you may use the interactive query mode. See Appendix C for details.

Rx Frequency/Class & Age
This report generates the total number of drugs prescribed per patient, based on their therapeutic category, and the percent of patients receiving each drug within the category. For each category and drug, the information is distributed by age groups. All records in the specified survey are included in this report; however, if you wish to narrow the scope of the report, you may use the interactive query mode. See Appendix C for details.

6.2 PASS Validation Reports

The Validation Files reports simply list all information entered in each validation database file. For each report, the information is sorted by the code field. The available validation reports are:

Area/District
Basic Unit
Currency
Dispensing Unit
ICD Classification (Problems)
List of Drugs - by Code
List of Drugs - by Name
List of Locations - by Code
List of Providers - by Code
List of Providers - by Name
List of Surveys
Location Level
Ordering Unit
Pharmaceutical Form
Provider Specialty
Provider Type
Route of Administration
State/Province
Strength Unit
Therapeutic Class
WHO Classification

6.3 Generating PASS Reports

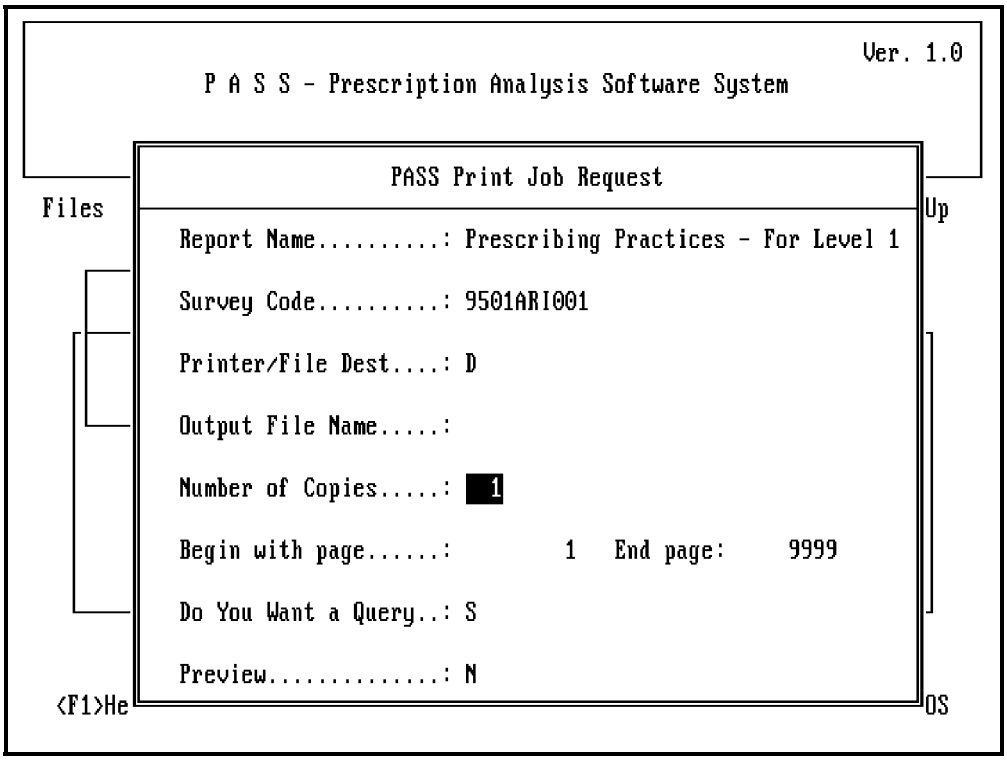


Figure 6.1 Reports

To generate a report, select the desired PASS report (*Standard or Validation Reports)* from the Reports Menu on the main screen. From the PASS report generator window press the <ENTER> key to access the R&R Master Control File browse window. This window contains the list of all PASS standard reports. Once you've selected the report you wish to have generated, the PASS Print Job Request window will appear. Use this window to set up any special parameters for your report. The following is a description of the various parameters available for you to generate the report.

Survey Code This field is linked to the Survey Data browse window. Press <ENTER> and the list of defined surveys will be displayed. Select the survey for which you want the report generated.

Printer/File Destination This option window allows you to select the device to which your output will be directed. If you wish to have the report displayed on your computer screen, choose *Display*. Choosing *ASCII file* will cause your report to be sent to a file on your computer's hard drive. This is useful if you wish to have the report saved to disk, or if you wish to print the file at a different location. ASCII files can be printed out without requiring the original program. Selections I-8 contain configuration options for various printers in your store.

During the setup process (see Chapter 2), the system was configured based on the kind of printer you would be using. If you only have one printer in your facility, you can probably assume that Printer #1 has been configured for that printer.

Output File Name

If you chose *ASCII File* as your destination, enter the file name to which you want to have the report saved.

No. of Copies

Enter the number of copies of the report you would like the system to print. This means that once the report is generated, the system will print the specified number of copies of the entire report.

Begin With Page/ End Page:

Choose the page number you want the system to start printing. For example, if you generated a report with 25 pages, but the information you specifically wanted started on page 5, then enter page 5 in this field. In addition, if the report contains more pages than you wish to print, use the END Page field to specify the last page number to print.

Do You Want A Query?

This option allows you to customize the report to your own specifications and criteria, if necessary, in addition to the standard criteria. For example, if you wish to generate a summary report, but you only want the information for all encounters that are under the age of 5 (group A), you would choose to enter the interactive query mode, and specify "Tot_A is greater than or equal to 0". See Appendix C for details on creating additional queries.

The option window gives you two choices, allowing you to indicate whether you want to use the criteria established with the reports by choosing *(0) - No query*, or build your own query using the *Interactive Query Interface (I)*. The Interactive interface requires a good working knowledge of R&R Report Writer (see Appendix c for R&R query commands). Once you've selected the desired criteria, PASS will begin to generate the report.

Preview

The Preview option window allows you to send a sample of the report to the screen before generating the actual report. It might prove beneficial to preview the report before sending it to the printer. This would allow you to verify that all the information is correct before printing. Depending on the size of your database files and the specific report requested, these reports can become extremely long. Previewing would certainly save time and paper in the event you would have to make changes to complete the report.

Option *P* causes the report to be displayed in a graphic mode. This mode displays the report in a picture or snapshot format. After viewing the report in this mode, press the <ESC> key and choose either *G* to have the report generated and printed, or *C* to return to the reports menu.

Option *D* causes the report to be displayed in the standard R&R interactive view. This view displays the report in the same mode as choosing to send the report to your computer screen. See Chapter 3 for details on the R&R screen commands. Once you have completed the preview, choose *G* to generate the report or *C* to cancel and return to the reports menu.

Option *N* should be selected when you have no need to preview the report before printing.

Once you have completed the Print Job Request Form and have accepted your changes, R&R will begin generating the report based on the options chosen.

6.4 PASS Sample Standard Reports

The following pages contain samples of the reports that may be generated using the PASS Standard Reports option.

PASS - Prescription Analysis Software System - 10/17/95

ABC Analysis - Summary for Survey - Based on Quantities Prescribed and Estimated Cost

QUERY : Include all records where (SURVEY->SURVEY_ID is equal to SYSTEM->RRPASSIT)

SURVEY: 9501ARI001 Prescribing Practices in ARI Treatment

Code	Generic Name	Strength	Route	Form	Cost/ Issue Unit	Quantity Dispensed	Total Cost	% of Total	Cumulative % of Total Cost	Number of Items	A B C
ALH320L	Aluminium Hydroxide	64MG	PO	SUSP	1.8100 /BOTT	3.00	5.43	48.93%	48.93%	11.11%	A
AMP500T	Ampicillin	500MG	PO	TABLET	0.0709 /TAB	20.00	1.42	12.78%	61.71%	22.22%	A
AMP500A	Ampicillin	500MG	INJ	VIAL	0.2599 /VIAL	5.00	1.30	11.71%	73.42%	33.33%	A
AMP250A	Ampicillin	250MG	INJ	VIAL	0.2000 /VIAL	5.00	1.00	9.01%	82.43%	44.44%	B
ACE250T	Acetazolamide	250MG	PO	TABLET	0.0258 /TAB	30.00	0.77	6.97%	89.40%	55.56%	B
AMP250T	Ampicillin	250MG	PO	TABLET	0.0366 /TAB	20.00	0.73	6.60%	96.00%	66.67%	B
ASA300T	Acetylsalicylic Acid	300MG	PO	TABLET	0.0038 /TAB	60.00	0.23	2.05%	98.05%	88.89%	C
AMI200T	Aminophylline	200MG	PO	TABLET	0.0072 /TAB	30.00	0.22	1.95%	100.00%	100.00%	C
						Grand Total	11.10	100.00%			

PASS - Prescription Analysis Software System - 10/17/95

Drug Costs/Class/Product & Age

QUERY : Include all records where (SURVEY->SURVEY_ID is equal to SYSTEM->RRPASSIT)

SURVEY: 9501ARI001 Prescribing Practices in ARI Treatment

THERAPEUTIC CATEGORY / PRODUCT	ROUTE	PERCENT OF TOTAL DRUG COSTS <5	5>= <25	25>= <50	50>= <60	60>=	All Ages
02. ANALGESICS, ANTIPYRETICS, NONSTEROID ANT		0.00%	0.00%	10.23%	1.38%	0.00%	2.05%
ASA300T Acetylsalicylic Acid 300MG TABLET	PO	0.00%	0.00%	10.23%	1.38%	0.00%	2.05%
06.2.1 PENICILLINS		0.00%	42.51%	89.77%	32.89%	0.00%	40.09%
AMP250A Ampicillin 250MG VIAL	INJ	0.00%	0.00%	89.77%	0.00%	0.00%	9.01%
AMP250T Ampicillin 250MG TABLET	PO	0.00%	42.51%	0.00%	0.00%	0.00%	6.60%
AMP500A Ampicillin 500MG VIAL	INJ	0.00%	0.00%	0.00%	15.73%	0.00%	11.71%
AMP500T Ampicillin 500MG TABLET	PO	0.00%	0.00%	0.00%	17.16%	0.00%	12.78%
14.1. OPHTHALMIC DRUGS		0.00%	44.95%	0.00%	0.00%	0.00%	6.97%
ACE250T Acetazolamide 250MG TABLET	PO	0.00%	44.95%	0.00%	0.00%	0.00%	6.97%
17. GASTROINTESTINAL DRUGS		0.00%	0.00%	0.00%	65.73%	0.00%	48.93%
ALH320L Aluminium Hydroxide 64MG SUSP	PO	0.00%	0.00%	0.00%	65.73%	0.00%	48.93%
25.1. ANTIASTHMATIC DRUGS		0.00%	12.54%	0.00%	0.00%	0.00%	1.95%
AMI200T Aminophylline 200MG TABLET	PO	0.00%	12.54%	0.00%	0.00%	0.00%	1.95%
		0.00%	100.00%	100.00%	100.00%	0.00%	100.00%
AVERAGE TOTAL COST PER PATIENT (USD)		0.00	1.72	1.11	8.26	0.00	3.70

PASS - Prescription Analysis Software System - 10/17/95

NUMBER OF PRESCRIPTIONS PER DRUGS

SURVEY: 9501ARI001 Prescribing Practices in ARI Treatment

Code	Generic Name / Prescribed Name	Strength	Route	Form	RX/ Product	Total Generic	Total Injectable
ACE250T	Acetazolamide	250MG	PO	TABLET	1	1	0
	Acetazolamide	# of RX Under this Name =			1		
ALH320L	Aluminium Hydroxide	64MG	PO	SUSP	1	1	0
	Aluminium Hydroxide	# of RX Under this Name =			1		
AMI200T	Aminophylline	200MG	PO	TABLET	1	1	0
	Aminophylline	# of RX Under this Name =			1		
AMP250A	Ampicillin	250MG	INJ	VIAL	1	1	1
	Ampicillin	# of RX Under this Name =			1		
AMP250T	Ampicillin	250MG	PO	TABLET	1	1	0
	Ampicillin	# of RX Under this Name =			1		
AMP500A	Ampicillin	500MG	INJ	VIAL	1	1	1
	Ampicillin	# of RX Under this Name =			1		
AMP500T	Ampicillin	500MG	PO	TABLET	1	0	0
	AMPILUM	# of RX Under this Name =			1		
ASA300T	Acetylsalicylic Acid	300MG	PO	TABLET	2	2	0
	Acetylsalicylic Acid	# of RX Under this Name =			2		
				Grand Total =	9	8 (89%)	2 (22%)

Bold= Generic Prescription

PASS - Prescription Analysis Software System - 10/17/95

SUMMARY OF PRESCRIBING PRACTICES BY LOCATION - For Level 1

QUERY : Include all records where (SURVEY->SURVEY_ID is equal to SYSTEM->RRPASSIT)

SURVEY: 9501ARI001 Prescribing Practices in ARI Treatment

CODE/NAME	TOTAL CASES	% FEMALE	% UNDER 5 YEARS	% SEEN BY PHYSICIAN	AVERAGE # OF PROBLEMS	% TWO OR MORE PROBLEMS	AVERAGE # OF DRUGS	% FOUR OR MORE DRUGS	% WITH INJEC- TION	% WITH GENERIC DRUGS	% WITH FORMULARY DRUGS	% WITH CRIT #1 ARI	% WITH CRIT #2	% WITH CRIT #3	% WITH CRIT #4
ALL TYPE OF FACILITY	4	50%	0%	0%	1.25	25%	2.25	25%	50%	75%	75%	75%	0%	0%	0%
DATA FOR LEVEL 1															
001 STATE 1	1	100%	0%	0%	2	100%	2.00	100%	100%	100%	100%	100%	0%	0%	0%
002 STATE 2	3	33%	0%	0%	1	0%	1.00	0%	33%	67%	67%	67%	0%	0%	0%

PASS - Prescription Analysis Software System - 10/17/95

SUMMARY OF PRESCRIBING PRACTICES BY LOCATION - For Level 2

QUERY : Include all records where (SURVEY->SURVEY_ID is equal to SYSTEM->RRPASSIT)

SURVEY: 9501ARI001 Prescribing Practices in ARI Treatment

CODE/NAME	TOTAL CASES	% FEMALE	% UNDER 5 YEARS	% SEEN BY PHYSICIAN	AVERAGE # OF PROBLEMS	% TWO OR MORE PROBLEMS	AVERAGE # OF DRUGS	% FOUR OR MORE DRUGS	% WITH INJEC- TION	% WITH GENERIC DRUGS	% WITH FORMULARY DRUGS	% WITH CRIT #1 ARI	% WITH CRIT #2	% WITH CRIT #3	% WITH CRIT #4
ALL TYPE OF FACILITY	4	50%	0%	0%	1.25	25%	2.25	25%	50%	75%	75%	75%	0%	0%	0%
DATA FOR LEVEL 2															
001/STATE 1															
001-001/AREA 1 - St. John	1	100%	0%	0%	2	100%	2.00	100%	100%	100%	100%	100%	0%	0%	0%
002/STATE 2															
002-001/AREA 1 - St. John	2	50%	0%	0%	1	0%	1.00	0%	50%	100%	100%	100%	0%	0%	0%
002-002/AREA 2 - St. Thomas	1	0%	0%	0%	1	0%	1.00	0%	0%	0%	0%	0%	0%	0%	0%

PASS - Prescription Analysis Software System - 10/17/95

SUMMARY OF PRESCRIBING PRACTICES BY LOCATION - For Level 3

QUERY : Include all records where (SURVEY->SURVEY_ID is equal to SYSTEM->RRPASSIT)

SURVEY: 9501ARI001 Prescribing Practices in ARI Treatment

CODE/NAME	TOTAL CASES	% FEMALE	% UNDER 5 YEARS	% SEEN BY PHYSICIAN	AVERAGE # OF PROBLEMS	% TWO OR MORE PROBLEMS	AVERAGE # OF DRUGS	% FOUR OR MORE DRUGS	% WITH INJEC- TION	% WITH GENERIC DRUGS	% WITH FORMULARY ARI	CRIT #1	% WITH CRIT #2	% WITH CRIT #3	% WITH CRIT #4
ALL TYPE OF FACILITY	4	50%	0%	0%	1.25	25%	2.25	25%	50%	75%	75%	75%	0%	0%	0%
DATA FOR LEVEL 3															
001/STATE 1															
001-001/AREA 1 - St. John															
001-001-001/LEVEL 1 - Health Center	1	100%	0%	0%	2	100%	2.00	100%	100%	100%	100%	100%	0%	0%	0%
002/STATE 2															
002-001/AREA 1 - St. John															
002-001-003/LEVEL 3 - Teaching Hosp.	2	50%	0%	0%	1	0%	1.00	0%	50%	100%	100%	100%	0%	0%	0%
002-002/AREA 2 - St. Thomas															
002-002-003/LEVEL 3 - Teaching Hosp.	1	0%	0%	0%	1	0%	1.00	0%	0%	0%	0%	0%	0%	0%	0%

PASS - Prescription Analysis Software System - 10/17/95

SUMMARY OF PRESCRIBING PRACTICES BY LOCATION - Locations

QUERY : Include all records where (SURVEY->SURVEY_ID is equal to SYSTEM->RRPASSIT)

SURVEY: 9501ARI001 Prescribing Practices in ARI Treatment

CODE/NAME	TOTAL CASES	% FEMALE	% UNDER 5 YEARS	% SEEN BY PHYSICIAN	AVERAGE # OF PROBLEMS	% TWO OR MORE PROBLEMS	AVERAGE # OF DRUGS	% FOUR OR MORE DRUGS	% WITH INJEC- TION	% WITH GENERIC DRUGS	% WITH FORMULARY DRUGS	% WITH CRIT #1 ARI	% WITH CRIT #2	% WITH CRIT #3	% WITH CRIT #4
ALL TYPE OF FACILITY	4	50%	0%	0%	1.25	25%	2.25	25%	50%	75%	75%	75%	0%	0%	0%
DATA FOR EACH LOCATION															
001/STATE 1															
001-001/AREA 1 - St. John															
001-001-001/LEVEL 1 - Health Center															
001-001-001-001/Health Center #3	1	100%	0%	0%	2	100%	2.00	100%	100%	100%	100%	100%	0%	0%	0%
002/STATE 2															
002-001/AREA 1 - St. John															
002-001-003/LEVEL 3 - Teaching Hosp.															
002-001-003-345/General Hospital	2	50%	0%	0%	1	0%	1.00	0%	50%	100%	100%	100%	0%	0%	0%
002-002/AREA 2 - St. Thomas															
002-002-003/LEVEL 3 - Teaching Hosp.															
002-002-003-787/Kao Teaching Hospital	1	0%	0%	0%	1	0%	1.00	0%	0%	0%	0%	0%	0%	0%	0%

PASS - Prescription Analysis Software System - 10/17/95

Prescribing Practices - Summary

QUERY : Include all records where (SURVEY->SURVEY_ID is equal to SYSTEM->RRPASSIT)

SURVEY: 9501ARI001 Prescribing Practices in ARI Treatment

ENCOUNTER DATA

Total Number of Encounters: 4

Age Distribution			Sex:	
Under 5	0	0%	Percent Female	50%
5-14	0	0%	Sex not Listed (Number)	0
15-24	1	25%		
25-34	0	0%		
35-44	1	25%		
45-54	0	0%		
55-64	1	25%		
65 and Over	0	0%		
Age Unknown	1	25%		

PROBLEMS

Problems Listed	5	
One/Enc.	3	75%
Two/Enc.	1	25%
Three or More	0	0%

PRESCRIPTION PATTERN

Average Number Drugs/Enc : 2

Total Number of Drugs	9				
One/Enc.	0	0%	Generic Products	8	89%
Two/Enc.	1	25%	Injectable Forms	2	22%
Three/Enc.	1	25%	Formulary Drugs	8	89%
Four/Enc.	1	25%			
Five/Enc.	0	0%			
Six or More	0	0%			

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Rx Frequency/class & Age

QUERY : Include all records where (SURVEY->SURVEY_ID is equal to SYSTEM->RRPASSIT)

SURVEY: 9501ARI001 Prescribing Practices in ARI Treatment

THERAPEUTIC CATEGORY RECEIVING PRODUCT		NUMBER OF PRODUCTS/PATIENT						PERCENT OF PATIENTS		
PRODUCT	ROUTE	<5	5>= <25	25>= <50	50>= <60	60>=	All Ages	<5	5>= <25	25>= <50
02. ANALGESICS, ANTIPYRETICS, NONSTEROID ANT		0.00	0.00	1.00	1.00	0.00	0.67			
ASA300T Acetylsalicylic Acid 300MG TABLET	PO							0.00%	0.00%	100.00%
100.00% 0.00% 66.67%										
06.2.1 PENICILLINS		0.00	1.00	1.00	2.00	0.00	1.33			
AMP250A Ampicillin 250MG VIAL	INJ							0.00%	0.00%	100.00%
0.00% 0.00% 33.33%										
AMP250T Ampicillin 250MG TABLET	PO							0.00%	100.00%	0.00%
0.00% 0.00% 33.33%										
AMP500A Ampicillin 500MG VIAL	INJ							0.00%	0.00%	0.00%
100.00% 0.00% 33.33%										
AMP500T Ampicillin 500MG TABLET	PO							0.00%	0.00%	0.00%
100.00% 0.00% 33.33%										
14.1. OPHTHALMIC DRUGS		0.00	1.00	0.00	0.00	0.00	0.33			
ACE250T Acetazolamide 250MG TABLET	PO							0.00%	100.00%	0.00%
0.00% 0.00% 33.33%										
17. GASTROINTESTINAL DRUGS		0.00	0.00	0.00	1.00	0.00	0.33			
ALH320L Aluminium Hydroxide 64MG SUSP	PO							0.00%	0.00%	0.00%
100.00% 0.00% 33.33%										
25.1. ANTIASTHMATIC DRUGS		0.00	1.00	0.00	0.00	0.00	0.33			
AMI200T Aminophylline 200MG TABLET	PO							0.00%	100.00%	0.00%
0.00% 0.00% 33.33%										
TOTAL -- ALL THERAPEUTIC CLASS		0.00	3.00	2.00	4.00	0.00	3.00			

UTILITIES

7.0 UTILITIES

The Utilities menu contains options that allow you to customize your system environment. Unlike the Survey Constants, many of these options do not affect your PASS program environment itself, but can be used to enhance your working environment. The following is a discussion of all available options in the Utilities menu.

7.1 Reindex Files

Use this option to have PASS reset the System Index files. PASS uses Index files to sort items in a database. Occasionally, as you add and remove files from the system, the Index files may become outdated and you may not be able to find new files in the system. Select this option to have the system files reindexed. This feature should be selected whenever the system has been interrupted, as in the case of a power failure. Additionally, it should be performed on a regular basis (weekly at a minimum) and whenever many processes have been performed in a short period of time. This option should be used whenever problems are experienced with the system.

Pack and Reindex All Files Press <ENTER> here to have all System files reindexed; or, you may choose a specific file to reindex from the list in the option window. Once you have made your selection, press <ESC> to begin the process. Depending on the size of your files, it may take up to several minutes to complete the process. Once PASS has completed the reindex process, the program will return to the Utilities Menu.

7.2 Colors Setup

Colors Setup allows you to change the program color schemes for your working environment. Each option displays a foreground and background color. Use the left and right arrows to select your foreground colors, and the up and down arrows to select your background color.

Graphics This option will determine the border and line draw colors of your screen. Select the Graphics field to change the current color scheme.

Data Fields This option allows you to set background and foreground colors for data fields that are displayed on the screen but are not currently being edited.

Enhanced The Enhanced option allows you to set your colors for fields that are currently selected.

Screen Text Changing this field affects the way your field definitions are displayed. Any text on your screen not found within a data field will be affected by changes made on this option.

Exploding Windows Exploding Windows start from a central position and expand outward until the entire window is displayed. Selecting *No* for this option will simply cause each window to appear instantly on the screen. This feature is a cosmetic feature simply based on preferences.

The system defaults for color setup are:

Graphics:	Cyan on Black
Data Fields:	Bright Cyan on Black
Enhanced:	Yellow on Blue
Screen Text:	Bright Red on Black

Once you have changed the color setup, you must exit the program and restart it for these changes to take effect.

7.3 Screen Savers

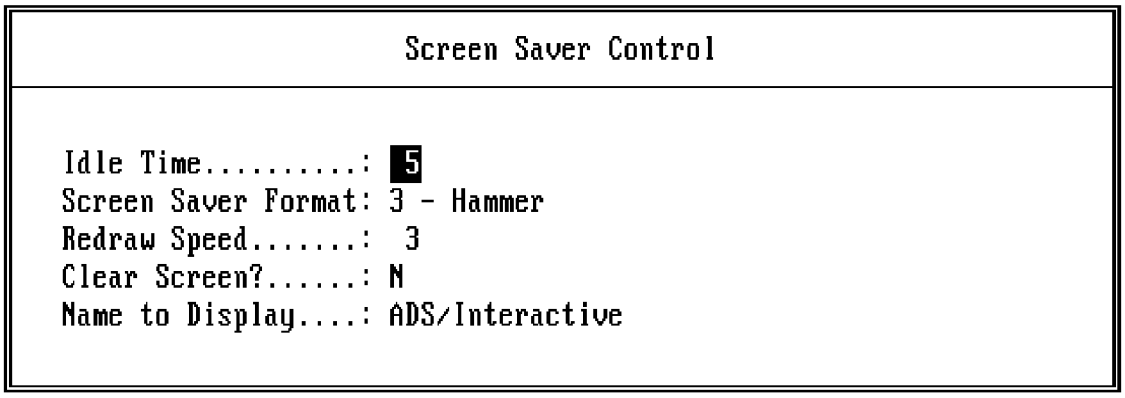

Figure 7.1 Screen Saver Options Window

The program has a built-in Screen Saver that will take control of your screen after a set period of keyboard and mouse inactivity. You have the option of selecting from several different formats.

Idle Time

Number of minutes the system will wait without a keypress or mouse activity before the screen saver is activated. The system default is 5 minutes. Zero to turn off.

Screen Saver Format

There are several different Screen Saver formats that you can select:

1.Banner. This routine displays a series of colorful blocks with a message or name displayed inside each block.

2. Confetti. A colorful sprinkling of confetti on the screen. Very different effects when Speed is set at 0 or at 5.

3. Hammer. Watch as your application screen gets hammered.

4. Weave. A bright weave of color on the screen.

5. Vertical Bars. Colorful bars systematically overwrite your screen.

6. Push. A march of colorful bars pushes your screen right off the monitor.

7. Squares. An artistic pattern of color is displayed. Again, changing the Speed setting makes this an interesting effect.

8. Box. A single box moving on the screen, but with a message or name and a touch of tantalizing color.

9. Dizzy. A slow horizontal roll of the screen.

0. Inside Out. A different treatment to the existing screen.

Redraw Speed How quickly new action takes place, in seconds. Any value from 0 to 15. With the Confetti format, this determines how often the paint color changes.

Clear Screen? Set to *Y* if you want the application screen cleared before Screen Saver activity. This would normally be left as *N* unless you are nervous about your program looking strange. Does not apply in Hammer format and always applies in Box format.

Name to Display The name to be displayed if screen format 1 or 8 is selected. Visible only with the Names and Box format. If a name is not specified, a series of default messages will be used.

7.4 Backup Files

When working with any software application, it is absolutely essential to back up the data files on a regular basis. This is the only way you can ensure against data loss in the event of a power failure or hardware/software problem. This option allows you to back up all pertinent data and program files to a floppy drive using the PKZIP shareware program. When selected, the system prompts you to choose the correct drive to save the backup to (A or B). Before you select a drive, make sure you have a diskette in the correct disk drive.

This process formats the diskette in the selected drive, removing any data previously on the diskette. Make sure you either have a blank diskette or have no need for the data currently on the diskette you are about to use. After your first backup, you should use a second set of diskettes and rotate between the two sets for all subsequent backups.

7.5 Restore Files

This option allows you to restore files from a backup disk that was created using the Backup option. When selected, the system prompts you to choose the correct drive to restore from (A or B). Before you select a drive, make sure you have the latest backup diskette in the correct disk drive. This feature will copy all pertinent data and program files from the floppy diskette to the hard disk where the PASS program is currently located.

Any data currently in the PASS directory will be overwritten. It is essential that you have the *latest* copy of the data on your backup diskette.

SETUP

8.0 SETUP

8.1 Survey Constants

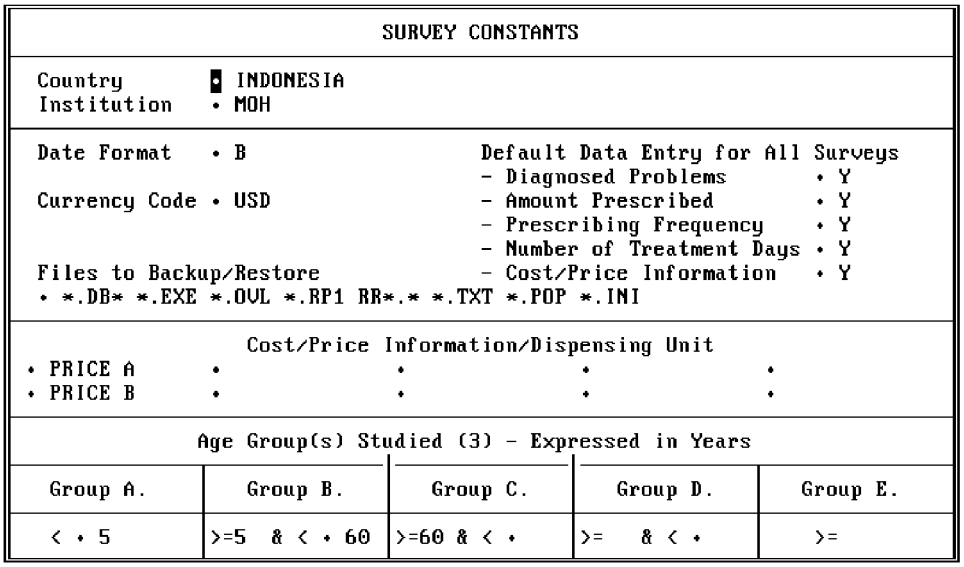

Figure 8.1 Survey Constants (System parameters)

This feature is used to customize the system program environment to match specific options used in your country. Options selected here will affect how PASS handles your analysis survey. Much consideration is needed when selecting options in this section, and this should only be done by the survey manager. Some of this information only needs to be specified once (such as the country name or date format), while other settings may be changed based on the analysis being conducted. To set up your survey environment or make changes to the current settings for a new survey, select *Survey Constants* from the Setup Menu. The following is a description of the options presented in the Survey Constants window.

Any changes made to the parameters in the survey constants will not be effective until you start a new survey.

Country Enter the name of your country. This information will appear on all your reports.

Institution Enter the name used for your organization. This information will appear on all reports.

Date Format When you press <ENTER> at this field, a browse window appears from which you can select the date format you wish to use. You have five choices for displaying and entering information on dates:

- B-British dd/mm/yy
- A-American mm-dd-yy
- I-Italian dd-mm-yy
- F-French dd/mm/yy
- N-ANSI yy.mm.dd

Make sure everyone in your facility understands the correct setup and uses the same format.

Currency Code Enter the code for the currency used in your country (e.g., USD for U.S. dollars). This field is linked to the Currency validation file; thus, a browse window is available.

Default Data Entry for All Surveys

Diagnosed Problems If you wish for PASS to track the number of diagnosed problems each encounter has, enter *Y*. If you do not wish to keep track of this information, enter *N*.

Amounts Prescribed If *Y* is entered, PASS will track the amount of each drug prescribed for all encounters in the current survey. If you do not wish to keep track of this information, enter *N*.

Prescribing Frequency If *Y* is entered, PASS will track the treatment intervals for each drug prescribed for all encounters in the current survey. If you do not wish to keep track of this information, enter *N*.

Number of Treatment Days If *Y* is entered, PASS will track the number of days for which each patient (encounter) must continue treatment for the prescribed drug. If you do not wish to keep track of this information, enter *N*.

Files to Backup/Restore

This field allows you to specify which file should be included when performing the backup or restore feature. File extensions are used to identify the files. For example, if *.DBF *.EXE were entered in this field, the system would backup or restore all files that have the .DBF extension, and all files with the .EXE extension. This field may contain up to 70 characters, and each extension should be separated by an asterisk.

Cost/Price Information/ Dispensing Unit

Up to 10 different price categories may be entered, which will be used to distinguish between the various costs of a particular drug. This allows you to compare the price a patient paid versus other programs.

Age Group(s) Studied

This section of the screen allows you to set up to five different age groups that will be used to categorize all encounters. Each group (A–E) will cover a particular age range. Group A will include the lowest ages in your study. For example, if you wish to include only those encounters under the age of 25 for a particular survey or report, you might specify Group A to be < (less than) 25. All numbers are expressed in years. If you wish to be more specific, you may have several groups encompassing all ages from 1 to 25 years.

8.2 Validation Files

The Validation Files option contains several small databases used to provide standardized options throughout the rest of PASS. Validation files are often accessed as browse windows and make the process of completing forms much easier. Validation files are generated and used to maintain a list of options available for many fields. To create or access validation file databases, select *Validation Files* from the Setup menu of the PASS Main Menu. The following discussion describes each validation file and its purpose.

The main purpose of these files is to allow the user to develop his or her own data dictionary that can be used regularly to enter data in various fields, thereby making data entry more consistent. Each validation file consists of a code and description. PASS uses the codes as an easy way to identify specific data. For example: Some people might enter TAB while others enter TABLET or Tablet as a dosage form; if TAB is used in the Validation Reference file, TAB will be entered each time.

8.2.1 Summary of Commands

Adding Options to a Validation File

To add an item to a validation file, simply select the validation file and press <Ins>. Fill in the corresponding page that is displayed to match the information requested for the validation file.

Removing Items from Validation Files

To delete an item from a validation file, simply highlight the item and press <Del>. This will prompt a confirmation option window asking if it is indeed okay to delete. Select *Yes* if you wish to remove the item from the validation file; select *No* if you wish to cancel the delete option.

Search Mode

If you wish to search for a particular record in a validation file, enter the code in the Search field located below the main screen. Please note: The search mode in all validation files is conducted based on codes only.

8.2.2 Provider Type

The Provider Type validation file is used to maintain a list of health care provider categories, for example Doctor, Pharmacist, or Nurse. Each category is associated with a unique code may be up to three digits long. You can create your own categories. Below is a table of some sample provider types.

Category	Description
003	NURSE
090	PHARMACIST
100	DOCTOR

8.2.3 Provider Specialty

This database file is used to maintain a list of areas of concentration in which health care providers may specialize. Below is a table of some sample provider specialities.

Code	Description
100	Surgery
200	Pediatrics
300	Internal Medicine

8.2.4 Route of Administration

The Route of Administration validation file is a database file used to describe how the drugs are administered and to identify which are injectable. For example, if you defined acetaminophen in the drug database and the pharmaceutical form as tablets, the route of administration for this item would be oral, and the value for Injectable would be *N*. Below is a table containing some sample options for the Route of Administration validation file. You may build your own validation file or use the sample provided.

Code	Description	Injectable
DROP	Oral drops	N
INH	Inhaler	N
INJ	Injectable	Y
IV	Intravenous	Y
NASAL	Nasal drops	N
OPHT	Eye preparation	N
OTIC	Ear drops	N
PO	Oral preparation	N
RECT	Rectal preparation	N
SC	Subcutaneous	Y
SL	Sublingual	N
STRIP	Diagnostic	N
TOP	Topical	N
VAG	Vaginal preparation	N

8.2.5 Pharmaceutical Forms

The Pharmaceutical Forms validation file is used to maintain a list describing the form of the drug. For example, to indicate the dosage form (drug information screen) of any item in the drug database as a capsule, add the code "TAB" and description "Tablets/Capsules" to your database. Below is a table of some sample forms. You may create your own forms list based on terminology used in your environment or you may use the one listed below. The code can be up to five letters long.

Code	Description
AMP	AMPULE
CREAM	CREAM
CRTDG	CARTRIDGE
DISP	DISPOSABLE
DROPS	ORAL DROPS
ELIXI	ELIXIR
ENEMA	ENEMA
INHAL	INHALER
KAMP	TEST
LIQUI	LIQUID
LOTIO	LOTION
NASAL	NASAL DROP
OINTM	OINTMENT
OPHTD	OPHTHALMIC DROPS
OPHTO	OPHTHALMIC OINTMENT
OTIC	EAR DROPS
PESSA	PESSARY
POWDE	POWDER

8.2.6 Basic Unit

The Basic Unit validation file provides a list describing the smallest measurable unit in which a drug is produced or stocked. PASS uses the Basic Unit as the unit of measure when calculating drug costs and when expressing the strength of a drug. You may use the following sample table or create your own.

Code	Description
AMP	Ampule
CAP	Capsule
DOSE	Dose
GM	Gram
KG	Kilogram
MG	Milligram
ML	Milliliter
PESS	Pessary
SUPP	Suppository
TAB	Tablet
TS	Teaspoon = 5 ML
VIAL	Vial

8.2.7 Strength Unit

The Strength Unit database is designed to describe the various units in which the strength of drugs is expressed. You may generate your own or use the sample below.

Code	Description
ED	Single Dose
G M	Gram
IU	International units
MCG	Microgram
MCMOL	Micromole
MEQ	Milliequivalent
MG	Milligram
ML	Milliliter
MMOL	Millimole
MU	Megaunits

8.2.8 Dispensing Unit

The Dispensing Unit validation file contains a list of the standard units in which a drug is administered to patients. Below is a sample.

Code	Description
AMP	Ampule
BOT	Bottle
BOX	Box of items
CAP	Capsule
CRTDG	Cartridge
CYCLE	Oral contraceptives
EACH	Single items
G M	Gram
INHAL	Inhalable drugs
JAR	Solids
KIT	Kit
LITER	Liter
ML	Milliliter
PACKE	Packet of powder
PAIR	Pair
PESS	Pessary
ROLL	Roll (bandages, etc.)
SET	Set

8.2.9 Ordering Unit

This validation file is used to indicate the types of packages in which drugs are ordered. For example, tetracycline syrup may be ordered in cartons of 50 bottles, while acetaminophen tablets may be purchased in bottles of 1,000 tablets. The ordering unit for these items would be cartons and bottles, respectively. You may generate your own database or use the sample list below.

Code	Description
BOTT	Bottle
BOX	Box

8.2.10 Therapeutic Class

Therapeutic Class is another database file designed to maintain the various therapeutic classes under which an item may fall based on its clinical use. There are several therapeutic classification lists available, some provided by the World Health Organization. Use this database to store the therapeutic classification that is most common in your region.

8.2.11 WHO Classification

The World Health Organization (WHO) has developed a drug classification system. PASS comes with this classification system installed as a validation file.

8.2.12 ATC Classification

The anatomical therapeutic chemical (ATC) classification system is an international coding system provided by the Nordic Council on Medicines and recommended by the WHO. The ATC provides a common basis for drug classification to facilitate comparative data for drug consumption between different countries. Drugs in this system have been divided into 14 main groups called the first level, with two subdivisions, a second and third level, which are therapeutic subgroups. There are two additional levels, a fourth and fifth, describing the chemical/therapeutic subgroups and the single chemical substance, respectively. PASS comes with the complete ATC classification list installed as a validation file.

8.2.13 Level 1

The Level 1 validation file is used to provide the name of the study region where treatment occurred. The codes generated here are used to build the first section of the Locations code. This database should contain a thorough listing of all states or provinces that contain treatment facilities that will be included in your study.

8.2.14 Level 2

This validation file provides the names of all areas or districts within the study region that contain treatment facilities. The codes generated here are used to build the second section of the Locations code.

8.2.15 Level 3

This validation file is used to describe the level or type of treatment facility. The codes generated here are used to build the third section of the Locations code. Examples of location levels include clinics, hospitals, and private offices. Generate your own database based on the type of treatment facilities in your study area.

8.2.16 Problems Classification

The classification system is a standard system of codes used to identify health problems and conditions. PASS comes with this list installed as a validation file.

8.2.17 Product/Brand

This file may be used to maintain a list of common drug brands or product names. Items on this list may be associated with specific drugs in the main drug database.

8.2.18 Currency

This validation file allows you to list all currency types encountered in your study. This allows the system to specify the currency in which the cost of a particular drug is given.

USING PASS

9.0 USING PASS

This chapter is designed to act as a tutorial to the PASS program. Step-by-step instructions for performing specific functions in PASS are given. As you complete each step, it is important that you read each screen thoroughly and enter the information in the correct field. If you need an explanation of what is required in a specific field, refer to the reference section of this manual (Chapters 4,33) to obtain clarification. Use the *NOTES* portion to list any information pertaining to your own procedures.

9.1 General Advice and Information

When you want to practice with PASS, create a "training" directory to hold your practice information. To create the directory, type MD TRAINING at the C:> prompt. To start your practice session, type CD\TRAINING and then, at the C:\TRAINING> prompt, type PASS. When you want to enter real information into PASS, type CD\PASS from the C:> prompt and then PASS from the C:\PASS> prompt.

Every day when you start PASS, make it a habit to update and reindex the files. If something unexpected happens when using PASS, reindex the files.

NOTES:

9.2 Adding a New Provider to the Database

To add a new provider to the existing database or to create a new provider database, complete the following steps:

1. Select Files from the main menu and choose Providers.

2. At the Providers main screen, press the <INS> key. Pressing the <INS> key will cause a blank Provider Information screen to be displayed.

3. Enter the Provider I.D. and the name of the provider.

4. The category field, whenever blank, is linked to the validation file Provider Type. Simply press <ENTER> in this blank field and the validation file Provider Type will be accessed. Use the arrow keys to select the desired provider type and press <ENTER> when the desired type is highlighted.

5. The next field to be completed is the Specialty field. Again, pressing <ENTER> here will access the validation file Specialties. Once displayed, use your arrow keys to select the specialty of the provider and press <ENTER> when the proper specialty is highlighted.

6. The Licenser field requires a numeric entry indicating the number of years that the new provider is licensed for. Enter any number, 0 through 99.

7. Once the License field has been completed, the cursor will move to the bottom half of the screen, titled Additional Training. There are five spaces available for you to enter additional training specific to the current provider. Once the arrow key has been moved to Additional Training point number 1, an action pop-up window will be displayed requesting you to choose the type of training. Select the type of training from the action window titled TYPE simply by using the arrow keys to highlight the specific type and pressing <ENTER>.

8. Enter the duration of the training, in weeks, and the year in which the training was provided. You may continue this process until you have completed all of the additional training information for the specific provider.

9. Once the additional training information is completed, an action pop-up window will be displayed requesting that you either *Accept* your entries, which correlates to you saving this as a new record, *Retry*, which allows you to go back and edit any information that may not be correct, or *Cancel*. This cancels the current entry and returns you back to the main provider information.

NOTES:

9.3 Adding a New Location to the Locations Database

To add a new location to the locations database, complete the following steps:

1. Select Files from the main menu and choose Locations. Pressing <ENTER> will cause the main locations screen to be displayed.

2. To add a new location, simply press the <INS> key. Upon pressing <INS>, a blank Location Information screen will be displayed.

3. The first field to be completed is the State or Province field. This field is linked to the validation file State or Province and can be accessed by simply pressing <ENTER> in the blank field. If you already know the code for the state or province, you may enter it and simply press <ENTER>.

4. The next field to be completed is the District or Area field. Again, this field is also linked to a validation file entitled Area/District which is accessed by pressing <ENTER>. Choose or highlight the code that you wish and press <ENTER>.

5. The next field to be completed is the Type field. Again, the Type field is also linked to a validation file. Simply pressing <ENTER> in the blank field will access the validation file Vocation Level. Choose the code that corresponds to the type of facility and press <ENTER>.

6. Finally, the Location field is the last field that must be completed with a unique code that corresponds to the specific location. Enter the three-digit code here.

7. Once the code for the Location field has been completed, the next field to be completed is the Name. Enter the name of the facility and press <ENTER>.

8. The next field to be highlighted is the field that corresponds to the National Code. If there is a national code for this location, enter it here.

9. Again, once all the information has been completed, the action pop-up box will be displayed. If you wish to save the information, choose *Accept*. If you wish to go back and make any changes to the information you just entered, choose *Retry*. If you wish to cancel the entire entry, choose *Cancel*. Choosing *Accept* or *Cancel* will return you to the main location menu.

NOTES:

9.4 Adding Drugs to the Main Drug Database

To add or edit a new drug in the main Drug database, complete the following steps:

1. Select Files and choose Drugs. Pressing <ENTER> to select Drugs will display the main drug list.

2. To add a new drug to the drug database, simply press <INS>. Pressing <INSERT> will cause the Drug Information screen to be displayed.

3. Enter the code for the drug. This, again, must be a unique code.

4. The next field to be completed is the name of the drug or the description. Enter the generic name or description of the drug. Also enter the international nonproprietary name, if known, for the drug.

5. The next field to be completed is the Form field. This field requires information describing the pharmaceutical form of the drug. If blank, simply press <ENTER>, and it will access the validation file Pharmaceutical Forms. Highlight the specific form for the drug and press <ENTER>.

6. The next field to be completed is the Route field. This field is also linked to a validation file called Route of Administration. Again, if the field is blank, simply pressing <ENTER> here will display the Route of Administration validation file.

7. The next field to be completed is the Basic Unit field. Again, this field is linked to the Basic Unit validation file. Highlight the basic unit of the drug and press <ENTER>. Enter the strength of the field, which is linked to the Strength Unit validation file and the dispensing unit, which is also linked to a validation file. Enter the ordering unit of the drug. Again, this field is linked to the validation file Ordering Unit.

8. Once these fields have been completed, the cursor will move back up toward the top of the screen and request you to enter the strength of the drug.

9. After entering the strength of the drug, has been entered the next field be prompted is the Define Daily Dose field. Enter the defined daily dose for the current drug.

10. Once these two fields have been completed, the cursor will move to the middle of the screen, prompting you to enter the basic unit per dispensing unit for the drug. Enter the information and press <ENTER>.

11. The cursor will move to the Dispensing Unit Per Ordering Unit Field. The field before that, Dispensing Unit Per Defined Daily Dose, is a calculated field. Enter the dispensing unit per ordering unit figure and press <ENTER>.

12. Next, enter the cost per ordering unit.

13. The next field prompts you to enter whether or not this drug is a generic drug. Simply enter *Y* or *N*.

14. The next field to be completed is the Formulary field. Simply enter *Y* or *N* to determine whether or not this drug belongs to the formulary.

15. Enter the therapeutic class for this drug. This field is linked to the validation file entitled Therapeutic Class. Highlight the proper class that corresponds to this drug and press <ENTER>.

16. The next field is linked to the World Health Organization Therapeutic Class validation file. If applicable, choose the code that corresponds to the therapeutic class from WHO and press <ENTER>. Once you press <ENTER>, the WHO Status action window will be displayed. Choose the proper status by simply using the arrow keys to highlight the corresponding status of the drug. Highlight the status and press <ENTER>.

17. The next field is the ATC Code field. This field is also linked to a validation file. Simply highlight the corresponding code, if applicable, and press <ENTER>. Again, pressing <ENTER> at this point will automatically bring up the Vital Essential and Non-Essential pop-up window. Use the highlight bar to select the classification for this drug and press <ENTER>.

18. At this point, the action pop-up box will be displayed. Choose *Accept*, if all of the information is correct and you wish to save this new entry in the database.

9.4.1 Drug Criteria/Categories per Survey Screen

If you choose *Accept* to save the information, the next screen that will be displayed is the Survey Data screen. The purpose of this screen is for you to choose that survey to which this drug is to be applied. To select the survey from the browse window, highlight the survey code that corresponds to the survey and press <ENTER>. This will cause the Drug Criteria screen to be displayed. All of the information at the top of the Drug Criteria screen has been entered in previous screens, but the following steps must be completed:

1. The first field for which you must enter information requires you to choose whether or not the new drug applies to the category or criterion for the selected survey. Enter *Yes* or *No*.

2. After each of the categories has been completed, an action box will be displayed. Choose

Accept if you wish to save the information.

3. After you choose *Accept*, the next screen to be displayed is the Drug Criteria/Categories Per Survey screen. Press <ESC>, because this screen has now been completed. Pressing <ESC> will now cause the Products screen to be displayed.

9.4.2 Products Screen

Use this Products screen to enter any additional products that can be used in place of or contains the current drug or that contain the current drug.

1. You can add a new product to this database simply by pressing <INS>. Pressing <INS> here will cause the Product Information screen to be displayed. The only information that may be entered here is the generic field. You may indicate whether or not this product is generic and the brand name or product name of the item.

2. Again, if a new product name is entered, choose *Accept* to save it in the database.

3. Once you have completed adding other products to the Products database, press the <ESC> key. You will then be returned to the Custom Browse window of the Products database.

4. Again, press the <ESC> key. You will now be returned to the main drug list. The new drug item has been added and saved to the database.

NOTES:

9.5 Adding a New Survey to the Database

To add a new survey to the survey database, complete the following steps:

1. Select Survey from the main menu. The main Survey Data screen will be displayed.

2. Simply press the <INS> key to begin entering information about your new survey.

3. Enter the code of the survey. Again, this code should be unique and all of the spaces must be completed in order for the system to accept the code. This field must contain 10 characters.

4. After entering the survey code, enter the title of your survey. There are two lines available for entering information about your survey.

9.5.1 Constants of Current Survey

Once the above information has been completed, the constant screen will be displayed. This screen is used to set up constant information about the current survey.

1. The first field requested is the Criteria/Category Studied. Enter the criteria or category being studied in this survey. There are four options available.

2. After you have entered your desired amount of options, simply press <ENTER> at a blank Category or Criteria field, and you will be taken immediately to the next field.

3. Enter whether or not you want the system to track diagnosed problems. Simply press *Y* or *N*. Also, choose whether or not you want the amount of drugs prescribed entered or included in your survey and the prescribing frequency. In addition, if you wish the system to track the number of treatment days, enter *Y*. Finally, if you wish your survey to track the cost or price information, then enter *Y* here.

4. The next field that requires information is the Cost/Price Information field. Enter the specific cost or price category in this field. This information will be linked to the Drug Information field for items to be included in the survey. There are 10 such Cost/Price Information fields, each labeled A through J.

5. After the final category information has been entered,the Age Group Studied field must be completed. The cursor will take you to the highest group. Enter your age group categories in this screen. Keep in mind the information entered here will only pertain to the current survey.

6. The Notes or Comments screen will be displayed next. Use this field to enter any additional information about your survey that may prove helpful in the future. This field is actually a

simple word processing memo field. As you enter information, the text will be wrapped onto the next line. Once you have entering information, press <ESC>, and the Memo action box will be displayed. If you wish to save the information entered in the Notes memo field, choose *Accept*.

9.5.2 Drug Criteria Values

The next step in adding a new survey is to set up the drug criteria values. After exiting the Notes field, the system will prompt and ask if you wish to create the drug criteria values. This setup is a process. Once selected, the system will cycle through each drug in the database and request you to specify whether or not this drug will apply to the new survey. Simply enter *Yes* or *No* for each category specified in the survey to indicate whether or not this drug applies to the current survey.

9.5.3 Encounter Information Screen

Once the process has been completed, the next step will be to add encounters to the Survey database. A blank Encounter Information screen will then be displayed.

1. Enter the Encounter I.D. and press <ENTER>. (You only need to press <ENTER> if the Encounter I.D. does not fill the field.)

2. Next, a calendar will be displayed. Highlight the appropriate date and press <ENTER>. The arrow keys (↑↓←→) can be used to change the date within the month. The <PgUp> and <PgDn> keys are used to change the month. To change the calendar year use the <+> and <-> keys.

3. The next field to be completed is the Location Code. This field is linked to the Location database. Simply highlight the location where the treatment was performed and press <ENTER>.

4. The next field is the Provider I.D. This field is also linked to the Provider database. Choose the provider by highlighting the correct I.D. number and pressing <ENTER>.

5. Enter the age of the encounter. All spaces must be filled in. Use the correct format.

6. Choose the sex of the encounter. This is done by highlighting the correct gender from the pop-up box.

7. Enter the amount paid or charged for the encounter. If the information is not known, simply press <ENTER>. At this point, the action box will then be displayed. Choose *Accept* to save the information.

8. The next information to be displayed is the Drug Information. Choose the drug that was administered for (or) during the encounter. Pressing <ENTER> in this blank field will cause

the. Products database to be displayed. This will list all of the drugs that apply to the current survey. Highlight the code for the specific drug and press <ENTER>. All of the information in the main portion of this screen will be completed based on information entered in the drug database.

9. The next information to be completed will be the amount of dispensing units prescribed. If you choose to track treatment duration and intervals, enter that information accordingly. If known, enter the dispensing unit price, the charge or cost for the drug, the dispensing fee, and any co-payment that the patient might be required to pay and then enter the total charged for the treatment.

10. Once you have completed selecting all drugs prescribed to this encounter, press <ESC> and you will be returned to the Encounter Drug Data screen. Press <ESC> again and you will then be returned to the main Encounter Information screen. Once you have completed the prescribed drug information, the Diagnosed Problems field will be displayed.

11. The next screen to be displayed is the Encounter Problem Information. The blank Encounter Problem screen is used to add symptoms or problems in which the encounter is being treated for. Pressing <ENTER> at this blank screen causes the ICD-9 Classification validation file to be displayed. Use the codes entered here to choose the specific problems experienced for this encounter. Once the information is completed, press <ESC> and you will be returned to the main Encounters Problems window. Upon completing this information, you will be immediately taken to the Encounter Drug Data screen. Enter the drug for which the individual is being treated.

12. After you have completed the Encounter Drug Data screen, press <ESC>. If you have completed entering all of the necessary drugs, choose *Yes* and you will be returned to the Encounter Drug Data screen.

13. Once all the information is completed, the system will return you to the Encounter Information screen and prompt you for a new Encounter I.D. If you wish to add another encounter, begin this process all over by entering a new Encounter I.D. If you wish to exit here, simply press <ESC>, and you will be returned to the Encounter database. Once this process has been completed, PASS will update all information and return you to the survey information screen.

NOTES:

9.6 How to use the PASS Calculator

A built-in calculator is accessible at any time during the use of the PASS program, and can be activated by simply pressing the <F4> key.

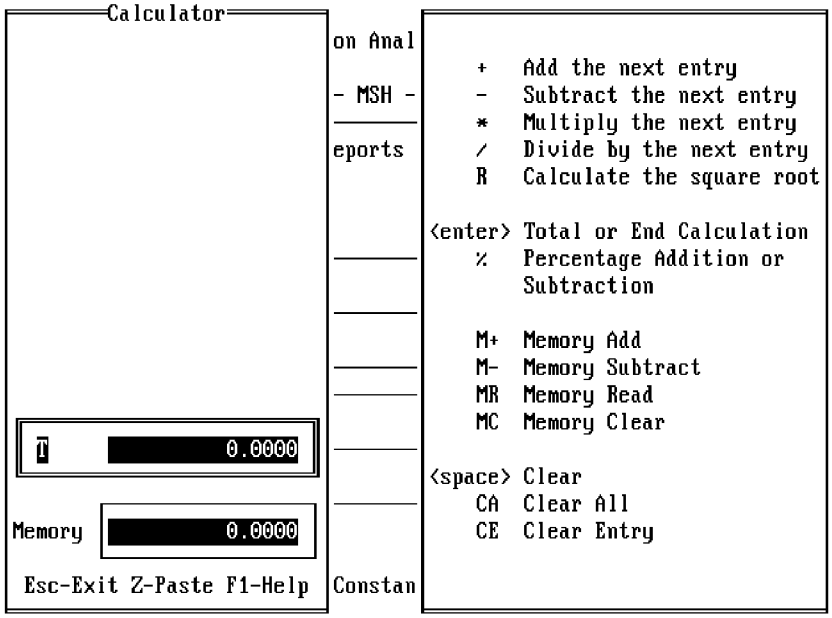

Figure 9.1

After pressing the <F4> key, you will see a pop-up box. (See Figure 9.1.) press the <F1> key for a detailed description of commands the calculator recognizes (i.e. <+> addition, <-> subtraction).

If you have activated the calculator while in a select field, you may enter the current calculated value into that field by pressing the *Z* key.

The <Esc> key allows you to leave the calculator and return to the previous screen.

CHAPTER 10

TROUBLESHOOTING

10.0 TROUBLESHOOTING

This section covers the different procedures for managing, protecting, and troubleshooting your PASS system. These procedures can be divided into two categories:

1. precautions to guard against data loss due to system failure; and
2. recovering from system or PASS program failures.

The primary purpose of this chapter is to provide solutions for commonly encountered problems, and troubleshooting advice for possible problems that may occur when using PASS. The following is a discussion of each the categories listed above.

10.1 Precautions: Backing Up PASS Data Files

When working with PASS (and any other software application), it is absolutely essential to back up the data files on a regular basis. This is the only way you can insure against data loss in the event of a power failure or hardware/software problem.

Backup procedures should be established at the same time the PASS system is installed. Depending on the work load at your institution, data files should be backed up, at the very least, at the end of every week. If your facility has a heavy work load, then **DAILY BACKUPS** should be performed. The frequency of your backups will determine how much data you may loose in the event of a problem. If you perform daily backups, then in the event of a system failure, you will only lose a day's work. On the other hand, if you only perform weekly backups, then you stand to lose a week's worth of work. Considering that a backup should not take more than 5 to 10 minutes to execute. Is it worth the time? You be the judge!

Data should be backed up on some type of removable media, such as floppy disks or tape cartridges. Once the backup has been performed, the media should be stored in a safe place to prevent any damage to your data. There are several ways in which you may back up your data. PASS comes with a backup option on the Utilities menu. Below are two other options you may use, depending on your facility's needs. See for the list of files that must be backed up regularly.

1. Third Party Software Packages

There are many commercially available software packages which will perform backups. Some packages can be set up to start the procedure automatically on a certain day or at a certain time. These packages are usually easy to use and can provide you with various options, such as only performing a backup on data that has changed since the last backup. PC Tools and Norton Utilities are among some of the most popular brands.

2. Using the DOS BACKUP Command

The DOS (Disk Operating System) you are using usually has a backup utility installed with it. This utility can be used to back up the entire C drive or only certain directories. Below is an example of the command to be used to back up the PASS directory only.

```
BACKUP C:\PASS\*.* A:
```

The above command will cause the system to prompt you to enter a disk in drive A. If any additional disks are needed, you will be prompted by the system. Be sure to label additional disks with the correct sequence number.

To restore the files using DOS utilities, type the following command at the C:> prompt.

```
RESTORE A: C:\PASS
```

The Restore program will ask you for the disks in the proper sequential order. **Any data currently in the directory will be overwritten.**

10.2 Recovering from System or Program Failures

System Failures

If there is a power failure while you are working in PASS, you must reindex the PASS files before doing more work on the system. Use the Reindex Files option under the Utilities menu. After you have indexed your files, you should check your data to make sure that none been lost. In the event of a severe system failure (such as a hard disk failure), after restoring the hardware has been restored to working condition, restore your data files from your last back up. This is why it is extremely important to maintain up-to-date data files and back up the files on a regular basis!

PASS Program Failures

The PASS program has been tested extensively prior to your installation. However, as with any computer program, problems may still occur. If you have any problems, follow the steps described below. DO NOT TRY TO CHANGE ANY OF THE FILES. IF THE FOLLOWING PROCEDURES DO NOT WORK, GET IN TOUCH WITH THE MSH SUPPORT CONTACT. Write down all information about the problem, including exactly what you were doing when the problem occurred and all computer responses. Note any error messages may appear on the screen. If possible, print out any error messages that appear on the screen.

1. If the screen freezes and you cannot move your cursor (a simple way to detect this is if your computer beeps if you press any key for 15 seconds), restart the computer by pressing the <Ctrl> <ALT> and <DEL> keys at the same time. If the system still does not respond, push the reset button or turn your computer off and then back on again. After the system has successfully restarted, try to access PASS again.

2. If you are having trouble accessing data or calling up information, reindex the files using the option under the Utilities menu. Try to access PASS again.

3. If the problem persists after you have indexed the files or restored your files from backup disks, contact the MSH PASS support person.

APPENDIX A

BASIC PRINCIPLES FOR DEVELOPING PASS APPLICATIONS

APPENDIX A - BASIC PRINCIPLES FOR DEVELOPING PASS APPLICATIONS

Two Basic Applications

Although the PASS system can be used for a variety of purposes, all applications may be grouped into two broad categories. They are:

Cross-sectional applications that produce profiles of prescribing practices at a certain point in time;

Longitudinal applications that allow for tracking adherence to standards of prescribing practices over periods of time.

Users wishing to describe current practices, or measure the effects of interventions aimed at improving these practices, will be interested in cross-sectional applications. Their objective will be to take average measures of drug prescribing practices for one period of time, or both before and after interventions, for the purpose of determining whether change has taken place.

Users wishing to monitor the quality of case management on a routine basis will be more interested in longitudinal applications. Their objective will be to identify prescribing behavior which does not meet a specified standard of quality and which therefore calls for supervisory action.

The purposes of this section are to (1) review the overall process for applying PASS and (2) outline some basic principles of cross-sectional and longitudinal applications.

Process for Applying PASS

As noted in the Overview, the process for applying PASS has five basic steps. They are:

1. Set up PASS's Reference and Classification Files;
2. Define an application and specify samples of sites and patient encounters;
3. Collect and code diagnostic and prescribing data;
4. Enter data into patient encounter screens; and finally
5. Run the program by requesting reports from the Reports menu.

PASS comes with the reference and classification files for drugs and health problems already filled with standard lists. In many cases the nomenclature of these lists or the products included will vary somewhat from lists that are being used locally. To make PASS suitable for use in any particular environment, users must make sure that the contents of the reference and classification files conform to local usage. There are two options for accomplishing this: First, users may edit the contents of these files by making adjustments in existing records or adding new records until the contents of the files conform. In most cases, this will be the most expedient option. Alternatively, however, users may purge the pre-loaded files and enter local drug and health problem data anew.

Samples of sites and patient encounters will vary according to the objectives of different applications. Experience shows that within sites, that is, within one clinic or one pharmacy, prescribing patterns tend to be very consistent. There can be, however, significant variations in prescribing patterns between sites. This means that in designing most applications, users should minimize sample sizes for patient encounters and maximize sample sizes for sites. Section 4 covers the subject of designing a study and drawing samples of encounters and sites.

For each patient encounter, data collectors ideally record the patient's identifying information, health problems, types of drugs, and numbers of units prescribed. PASS organizes this information and calculates averages for the relevant variables. These data may be collected retrospectively from records such as daily registers, patient files, or prescription slips. They may also be collected prospectively using observational or exit interview techniques.

In either case, all information is entered on standard data collection forms called Encounter Forms. In order to enter data on drugs and health problems into the PASS program, identifying codes for these fields must be assigned on these forms as well. Experienced data collectors who are very familiar with drug and health problem list nomenclature may be able enter these codes alone. Further details on data collection and coding are given below.

In some cases, it may not be possible to collect all desired data. With retrospective applications, for example, it is sometimes difficult to obtain information on the numbers of units of drugs prescribed. Where these data are not collected and entered, PASS can still produce reports based on the types and frequencies of drugs prescribed, but it cannot produce reports on costs.

Cross Sectional Applications

Cross-sectional applications are carried out to examine prescribing practices that occur during one period of time. The period may be of long duration, that is, of several weeks, months, or a year. Cross-sectional studies are useful for quantifying general tendencies in prescribing behavior. They are also useful for comparing variations in behavior between sites or groups of sites, such as districts or provinces.

One example of a cross-sectional application recently took place in a Central American country. The director of the Division of Maternal and Child Health wished to examine drug prescribing practices for diarrhea: she was especially interested in cases of acute diarrhea with no indication of other health problems. In particular, the director wished to know if there were significant variations in prescribing behavior among different types of clinical facilities.

A team of data collectors visited all facilities in one region, which included 11 puesto sanitarios (health centers staffed by auxiliary nurses); 15 puesto medicos (health centers with physicians); and 2 hospitals. The sample was drawn from all patient encounters with at least one diagnosis of diarrhea (acute diarrhea, amoebiasis, shigellosis, etc.) or parasites during a 12 month period. At least 2 cases of diarrhea were selected each month depending on the size of the facility. The total sample size was 1080 encounters. After MCH staff had entered all data, they used the Report Menu to make separate analyses for each diagnosis.

The sub sample for the diagnosis "acute diarrhea" contained 424 cases and generated the profile of prescribing behavior given by the table below. Close examination of PASS's Table of Basic Prescribing Indicators showed that while all facilities were likely to prescribe ORS, there was great variation among them in the use of antibiotics, with some sites using them sparingly and others using them excessively. This enabled the MCH Division staff to identify excessive use of antibiotics as a target problem and design an in service training intervention for resolving it. They were also able to determine which sites should receive priority attention, based on their individual prescribing profiles.

POINT OF COMPARISON	Puesto Sanitorio	Puesto Medico	Hospital
Percent Encounters with ORS	76	71	52
Percent Under 5's with ORS	82	75	67
Percent Encounters with Antibiotics	50	42	54
Percent Encounters with Injections	1	7	40
Average Drugs per Encounter	2.6	2.3	2.4

Longitudinal Applications

Longitudinal applications of PASS are often made for the purpose of monitoring the status of selected prescribing practices over time. Where cross sectional applications deal with general tendencies, monitoring applications attempt to identify behavioral extremes.

In a South East Asian country, one provincial CDD program manager decided to carry out a supervisory intervention aimed at 2 widespread prescribing behaviors that violated the case management policy. One was failure to prescribe ORS to children in the 5 years and under age group, and the other was the practice of routinely prescribing antiamoebic drugs for virtually every case of diarrhea.

He assigned a member of the epidemiological surveillance section to visit 24 health centers located in 2 regions every three months to collect data for patient encounters for simple diarrhea. The encounter sample consisted of 5 encounters in the 5 years and under age group and 5 in the over 5 years age group for each of the 3 preceding months. This provided 30 encounters per site per quarter for analysis.

Next, he specified levels beyond which prescribing behavior was considered unacceptable. For ORS prescribing, he focused on the 5 years and under age group and set the minimum level at 11 out of 15 encounters. Health centers where ORS was prescribed for less than 80% of the sample, that is, for less than 12 encounters, in this age group were designated as "problem sites," and a special supervisory visit was scheduled. For antiamoebics, the approach was similar. Taking both age groups into consideration, he set the level at 5, which meant that at health centers where antiamoebics were prescribed 20% or more of the sample, that is, for more than 4 encounters, received the problem designation. Depending on the outcomes of PASS's analysis, health centers could be targeted for special supervisory visits during the subsequent three month period. As the summary below shows, the number of health centers requiring special supervisory visits diminished over a one year period.

3 Month Cycle of Visits

Health Centers Designated as Problem Sites for	Total Visits 1st	2nd	3rd	4th
Under Prescribing ORS (<80%)	21	15	6	5
Over Prescribing Antiamoebics(20%)	24	20	10	7

Designing an PASS Application

The ways the PASS system will be used will vary from setting to setting. The nature and scope of an application will depend on many factors including: the information needs of health managers at a given point in time; the record systems in the health facilities to be studied; the types of providers whose behavior is to be studied; and the resources available to carry out the work. In general, the types of application possible with PASS fall into a few broad categories:

Describing current treatment practices: Such a survey is done by taking patient-specific and product-specific measures of practices from carefully selected groups of facilities and providers.

Comparing the performance of regions or health facilities: In addition to summarizing the treatment practices of a group, such an application seeks to compare practices between regions, or even among facilities within regions.

Periodic monitoring of problem behaviors: Rather than summarizing changes in treatment practices, or comparing practices between groups, a monitoring application is designed to use indicators to identify facilities whose performance lies below a defined standard of quality, so that these facilities can be targeted for supervision.

Assessing the impact of an intervention: Properly evaluating an intervention requires that practices be reliably measured both before and after the intervention, and in both an intervention and a control group. Comparison of the changes in practice of these two groups from baseline to follow-up is an unbiased way to determine whether or not an intervention has been effective.

The first step in designing an PASS application is to clearly specify its objectives. Based on the level of detail of these objectives, the nature and size of the samples required, the design of the sampling process, and the complexity of analysis of the resulting data can vary greatly.

This section will outline the steps involved in designing an application, and highlight some of the key sampling issues to consider. Designing an application will rarely be easy; there are no simple rules to guide the selection of locations to study, or facilities, or drug encounters. However, by following key principles in study design and sampling, you should be able to determine the basic structure of your application, and understand when to seek help in refining it further.

Basic Issues

The requirements for minimum sample sizes of facilities and encounters, and for the frequency of data collection, will depend on the objectives of a particular application. An application designed to get an overall idea of the quality of care for a specific category in a region will be designed differently from one intended to evaluate the impact of a training program on that management, or one intended to monitor health worker adherence to treatment norms over time.

Two important decisions in specifying the design for your application are:

nature and size of the sample;

whether to use retrospective or prospectively collected encounter data;

The next two sub-sections will describe some key issues in each of these areas to consider when you are creating the basic design of your application. The final sub-section makes some recommendations on both of these issues for different types of PASS applications.

Sample Units and Sample Size

Selecting an adequate sample is often one of the most misunderstood and controversial aspects of carrying out a study. One difficulty is that there is often no "correct" or "ideal" sampling plan. The optimal design for a particular application depends not only on the statistical theory underlying sampling, but also on the major objectives of the study and the practical aspects of collecting the data required, including the time, personnel, and financial resources available.

This section will review some key issues to consider in designing the sample for your application; it also makes some simple recommendations about the sample sizes that are usually thought to be adequate for different purposes. If it is important that the estimates of diarrhea treatment practices from your sample be highly accurate and reliable, such as when you are testing the effects of an expensive intervention, it is best to consult a sampling expert to ensure that your study design and sample size are sufficient for this degree of accuracy.

One common source of misunderstanding in a study of prescribing practice is the sampling unit. In most PASS applications, the primary sampling unit is the health facility; many factors related to drug supply and utilization patterns vary at the facility level. However, it is possible to think of the sample in a prescribing analysis in a variety of different ways, including as a collection of:

Areas or Locations - Depending on the objectives of a study, a sample may be designed to include different regions, districts, or subdistricts; or within a single region, it might include urban, peri-urban, and rural areas, or more and less affluent areas.

Health Facilities - Prescribing can take place at a variety of health facilities, such as hospitals, health centers, dispensaries, or drug retail outlets; again depending on study objectives, a sample can be drawn from health facilities of a single type, or from different types of facilities.

Health Providers - Prescribing is done by individuals such as physicians, nurses, paramedics, pharmacists, or drug sellers; often there are more than one provider per health facility. Sometimes it will be possible to know important background characteristics of the individual providers included in the sample, and to examine provider-specific differences in treatment patterns.

Prescribing Encounters - PASS collects data for individual treatment episodes between patients and providers. There are always multiple encounters collected from each health facility in the sample, and usually within each facility, a number of the encounters will have been treated by each individual health provider.

Why are these distinctions important? One of the hardest parts of designing a sample is to decide how many areas and health facilities to include, and how many encounters to collect at each facility. It is generally much more costly to add additional areas or facilities than it is to add additional encounters within facilities, because transportation and lodging costs for study organizers and data collectors at each additional facility are often substantial. One goal is to have a sample large enough to provide reliable answers to the major study questions, yet which includes the smallest possible number of areas and facilities.

On what grounds can decisions about the number of areas, facilities, and encounters be made? The following issues and simple generic recommendations provide some guidance, and next section provides recommendations by the four types of applications mentioned above.

There tends to be a correlation of treatment practices within a single provider over time, and between providers within a facility. Individual providers tend to treat the same type of health problem in the same way over time, as a result of their training, beliefs, and the drug supply system in which they prescribe. Over time, different providers working within the same facility will also tend to treat problems in a similar way based on factors like institutional policy, shared experiences, or drug availability. Therefore, there is very little variation within a facility and a greater variation between facilities.

Because of the correlation in treatment practices between providers within a facility, after a certain point, adding additional encounters to a sample within a facility adds very little new information. For example, if 11 of the first 30 diarrhea encounters sampled in a given facility receive ORS, you might reasonably expect around 110 of the first 300 to get ORS.

There needs to be a minimum number of encounters sampled within a facility to obtain reliable estimates of facility-specific practices. Many sampling experts feel that to get fairly stable estimates in most situations, 30 is a good minimum number of items to sample. In PASS, it is recommended that at least 30 encounters with the target diagnoses be sampled at each facility. This number is recommended because key treatment practices are often fairly stable within a facility; because it is easy to train data collectors to sample about 2 encounters per month; and because this number can be collected and recorded within a day's work in most settings.

Although 30 encounters should be a minimum, collect more encounters per facility if logistics permit. Once a data collector is on site, adding encounters has very little cost. If you find during the pilot test that data collectors can record 48 or 60 per day, increase the sample accordingly. If you are looking at a number of different diagnoses, for example simple diarrhea and parasitic diarrhea, collect 24 encounters for each diagnosis.

Because prescribing practices often vary between facilities, increasing the number of facilities is usually the best strategy to obtain more accurate and reliable estimates of treatment practices for the sample population.

Where there are a large number of facilities in the areas of interest, it is recommended that at least 20 facilities be included in the sample. Here, the expert's number of 30 would be better, but time and expense will often prevent this number from being included. Drawing generalizable conclusions about a large population from a sample that included fewer than 20 facilities would be difficult.

Overall, based on the above recommendations, there should be at least 600 episodes included in a cross-sectional prescription analysis sample. In a situation where fewer than 20 facilities are included - for example, when there are only 13 health facilities in a region to be studied -the number of encounters per facility should be increased accordingly to reach a minimum of 600.

If it is important to have accurate estimates of treatment practices in individual facilities, or if individual facilities are to be statistically compared, the number of encounters sampled within each facility needs to be much higher to obtain reliable estimates. A sample with fewer than 50-60 episodes per facility would usually not be sufficient. This number would also apply to the sample sizes needed to draw comparisons among providers.

Retrospective vs. Prospective Data

One basic decision faced in designing an PASS application is whether to use retrospective data extracted from historical records, or prospective data collected from current patients as they treated. There are advantages and disadvantages to both types of data.

Retrospective treatment records exist in many facilities, although often in different forms. These records are typically kept as part of the normal morbidity or drug consumption recording and reporting systems, or else as part of a facility-based system of medical or pharmacy records.

Retrospective data are usually easier to collect than prospective data, and suffer fewer potential biases. If they are well-maintained, it is often possible to define a retrospective study period of a year or longer, and spread cases throughout this period. This serves to minimize possible bias due to seasonal variations in health problems. It also means that treatment is observed at many points in the drug supply cycle. If practices tend to change during periods of drug shortage, this will be reflected in the data sampled from these periods.

The major weakness of retrospective data is that they are often incomplete. Individual or entire series of records can be missing, either because they were misplaced or because they were simply not recorded in the first place. In addition, the validity of retrospective data is often difficult to verify. Since retrospective records are usually kept for a different purpose than prescription analysis, key data elements such as the exact pharmaceutical prescribed, the specific health problem, or even whether a drug was dispensed as prescribed, can be consistently missing or of uncertain accuracy.

Prospectively-collected data on treatments have the advantage that they are usually complete. However, since prospective treatment data are often collected over a very short period of time, they can suffer biases due to seasonality, peculiarities in staffing, inconsistencies in the supply cycle, or most importantly, due to the fact that providers are aware that their behavior is being observed. Of course, in the absence of retrospective sources of data, you have little choice but to collect data prospectively, and try to guard against these possible sources of bias.

The principle question to answer in deciding to use retrospective or prospective encounter data in your application is whether adequate sources of retrospective data exist. The essential elements that these historical data sources must provide include:

the ability to link specific health problems with specific drugs prescribed for individual patient encounters;

a way to select a random sample of patient encounters that took place within a defined period of time;

if cost of treatment is to be studied, records must also indicate the exact quantities (tablets, milliliters, etc.) of each drug prescribed or dispensed.

If the record system in the facilities you wish to sample can provide these essential elements, a retrospective sample may be the most efficient for your application. A structured guide on how to plan a retrospective sample, and some alternatives for selecting the actual sample of encounters, is provided in Annex 2.

If historical data sources are non-existent or incomplete, or if you wish to collect other data elements not included in existing historical treatment records, then your application will need to rely on a prospective sample. A detailed guide on how to plan and manage prospective sampling of encounters is included in Annex 3.

Recommendations for the Four Types of PASS Applications

Studies Describing Current Treatment Practices

There should be at least 600 encounters included in a cross-sectional study, with a greater number if possible. If 20 health facilities are included, this means about 30 encounters per facility. If fewer facilities are included, a larger number of cases should be selected in each, so that the minimum of 600 is reached.

Where possible, retrospective data collection over the past year should be used. Where records do not exist or key components are missing, use a prospective data collection, being aware of the possible problems of this method.

Studies to Compare the Performance of Regions or Health Facilities

When it is important to be able to compare individual facilities, the size of samples drawn within each facility must be higher in order to get more reliable within-facility estimates of prescribing patterns. At least 100 cases in each health facility would be recommended. Again, and ideally, retrospective data would be used.

Periodic Monitoring and Supervision of Specific Drug Use Behaviors

When the PASS is being used as a monitoring tool, and data will be collected regularly over a period of time, the number of cases collected at any one time will be lower. Facilities which are found to exceed an arbitrary value for any key monitoring indicator (for example, ORS prescribing rate) will receive special supervisory attention. Over time, the numbers of encounters sampled can be adjusted to lower the rate of facilities being incorrectly flagged as failing to meet the specified quality standard. Generally, prospective data would be used for such monitoring, but if of good quality, retrospective data could be used.

Studies to Assess the Impact of an Intervention

PASS could easily analyze data collected for measuring changes in practice that result from an intervention, for example, changes in ORS prescribing following a training intervention at health centers. However, data collection must be designed in a way that will allow changes in practice that occur in response to the intervention to be distinguished from naturally-occurring changes. One critical issue in designing such studies is to compare changes that take place in the group of facilities or providers subjected to the intervention with changes (or lack of change) in an appropriate comparison group of facilities or providers (controls). Without such a contrast, it is impossible to know whether or not it was the intervention that caused any observed change in practice.

It is important to establish the data collection process for both the intervention and comparison groups in exactly the same way. If baseline data for the intervention group are collected prior to the intervention, baseline data for the comparison group should be collected then as well. Alternatively, if retrospective records in the intervention and comparison facilities are good, both pre- and post-intervention data might be collected in a single data collection exercise at the end of the follow-up period. In this way, it might be possible to guard against the possibility that changes in the study groups resulting from changes in the data collection system, or from the knowledge that their practices were being observed.

Although it is not important that they be identical, the sizes of the intervention and comparison groups should be similar, both in the number of facilities sampled and the number of encounters per facility. To provide reasonable accuracy when drawing conclusions from observed differences between the intervention and comparison groups, there should usually be at least 10 facilities in each group, with 20 for more reliable comparisons. The easiest way to collect prescribing data is by

retrospective data collection after the intervention is completed and the possible effect has occurred. If prospective data collection is used, exactly the same procedures should be undertaken in the intervention and control groups to control for bias that might result from the observation process.

Drawing a Sample of Areas and Facilities

In cases where objectives of your PASS application is to get an overall picture of the quality of care, more thought needs to be given to the issues of which geographic regions to study, and what types of facilities to include. This is important as variations usually exist from district to district, or facility to facility, while others from prescriber to prescriber due to a whole range of factors related to organization of facilities, pharmaceutical supply, and local cultural norms. How then can you get a representative picture of the quality of care, that is decide where to collect data, and from which types of health facilities?

One way to do this is to choose four areas (districts, regions) in which to work based on an informed division of all areas in the country into groupings based on geography, socioeconomics, population density, or key features of the health system. Some suggestions are:

capital city should always be included as one of the study areas,

if country is relatively homogeneous, simply choose three other districts at random,

if there are contrasting conditions in different areas of the country that might be expected to influence the quality of care, first organize all districts into groups based on these characteristics, then select study districts at random from these groups; allocate the three study districts according to the overall importance of each group in the country as a whole.

Three examples will make this more clear:

Example 1:	(1) capital city, (2) highland agricultural district, (3) lowland agricultural district; (4) arid district
Example 2:	(1,2) capital city and one other densely settled urban area, (3,4) two rural agricultural districts
Example 3:	(1) capital city, (2,3) two rural districts with reasonably good transportation links, (4) one relatively inaccessible rural district

To enumerate appropriate number of health facilities it is recommended that at least five health facilities per four of the regions selected above or a total of twenty facilities be visited. The actual selection should be guided by the following factors:

District hospital outpatient unit would always be one of the facilities selected in each study district; select randomly if there is more than one district hospital in the district.

For systems organized with only one basic tier of outpatient facilities below the district hospital (for example, rural health centers) select the other four as follows:

- if geographic distances and transportation logistics allow all facilities in the district to be accessed and necessary data collected in a single day, select four of these second-level units at random from all those in the district,

- if transportation is more difficult, select two facilities at random, and then choose two other facilities from those that are geographically close to them so that the paired facilities can be visited together.

For systems with two tiers below hospitals (for example, polyclinics and lower level health posts staffed by paramedics), select the other four as follows:

- choose two second-level facilities at random, and

- choose one third-level facility for each second-level facility from among those that are administratively organized under them, or that are geographically close to them, if the administrative organization is not hierarchical.

For systems that are organized in a different way, attempt to distribute the five facilities to be studied in each district appropriately among the possible types of facility according to their prevalence, how many patients they see, etc. Make sure that you select randomly from among the different types present in a system.

The most important concept to remember in each phase of this process is random selection - this ensures that results obtained from these health facilities are representative of the entire country.

Also it is worth remembering that although 20 facilities will give reasonably reliable picture of the quality of care, enumerating more facilities will make the calculated indicator results of treatment practices more reliable and generalizable.

If you have identified fewer that 20 health facilities of interest, clearly all facilities should be included, and the number of encounters studied in each increased. However in this case, because the number of facilities studied is low, conclusions about practices in facilities that were not studied should be drawn cautiously.

For selecting facilities from a list, one simple way is to assign each one a number, and pick numbers in a random way until you have reached the total number to be visited. Another more elaborate method for selecting facilities is to use a technique known as stratified systematic random sampling. This method is good at ensuring that different subgroups of facilities are adequately represented. The details are described in Annex 1.

Planning and Drawing a Sample of Encounters

Decide Sampling Method

The first step in planning a sample is to decide whether to use retrospective or prospective data collection methods. You should consider some of the issues related to reliability and bias mentioned above, as well as the adequacy of retrospective data sources in all the different types of facility to be studied.

Specify which Cases to Include

One way in which samples may vary is in the types of encounters they include. For example, a study may include all cases of diarrhea or parasites in patients of all ages, or it may be restricted to include only: children of certain ages; certain types of diarrhea with or without other types of health problems; cases seen in particular types of health service, for example, emergency rooms; or some other subset of diarrhea cases.

Based on the objectives of your application, you should develop an explicit definition of which encounters to include in your sample, taking into account age, diagnosis, treatment location, and any other important characteristic. This definition should be taught to data collectors during training, and can be used as a basis for checking the quality of the sample.

Determine the Intended Sample Size

The number of encounters you need to sample depends on the objectives of your application. There should be at least 480-500 encounters included in a cross-sectional study. If 20 health facilities are included, this means about 24 encounters per facility. If fewer facilities are included, a larger number of cases should be selected in each.

In general, the larger the sample size, the more reliable the estimates of prescribing indicators. If resources permit, adding more locations or facilities is usually more effective in increasing the precision of estimates than sampling more encounters in each facility.

When it is important to compare individual facilities, the size of samples within each facility must

be higher in order to get more reliable within-facility estimates of prescribing patterns. Usually, at least 50-60 cases in each health facility would be recommended.

Plan the Sampling Process

Once basic decisions are made about the type of sample, which cases to include, and how many to select, it is possible to plan in detail the methods that will be used to collect cases.

Collect Encounter Data

After a standardized process for collecting encounters has been planned and tested, the actual data collection and recording can begin. The issues involved in selecting and training staff who will collect treatment data, and the steps to be followed in executing the data collection process are discussed in the next section.

Application to Private Sector

It is important to realize that PASS application is possible for both public and private health sectors. Such an application could be important to implement in countries where many patients use private pharmacies and physicians for various treatments for a variety of reasons. Collecting quality of care information only from public sector then does not give the entire picture.

However, collecting data on this sector is very difficult as either encounter records do not exist, or are not easily available. One way to circumvent this problem is through the use of simulated purchase surveys, in which trained assessors present a standard scenario to these practitioners and obtain treatment. The scenario and data collection method is presented in Annexes 10 and 11. This strategy could be used for all for applications of the PASS discussed above: cross-sectional assessment of quality of care, comparison between types of facilities or regions, supervision, and for assessing impact of an intervention. For analysis of such data, PASS could be easily used.

Preventing Common Problems in Coding

There are a number of common problems in coding drug encounters which can be guarded against at the time the drug reference file is created. Each application must determine strategies for handling these problems, and set up the drug reference file accordingly. These include:

Uncertainty about which Units to Code as Dispensing Units

The quantity of each drug entered in an encounter record is used by PASS to examine both the appropriateness of dosing and cost of treatment. If these analyses are important to the user, special care must be taken in collecting the information on quantity dispensed accurately.

Drugs which are liquids, solutions, creams, ointments, or aerosols often have two sensible ways to measure dispensing units. Dispensing units can be described either by volume measures such as milliliters, liters, milligrams, or grams, or by container measures such as bottles, tubes, vials, ampoules, inhalers, etc. These units are usually recorded inconsistently in drug encounter records.

The key to reducing data collection problems is to select as the dispensing unit the measure which is most often recorded in drug encounters. Specify container measures if they are the ones most often written or implied in the prescribing record (as in syrups or ointments), for example, tetracycline eye ointment is usually dispensed in a 15 gm tube. Select volume measures if there will be some uncertainty about the size of the container dispensed (as in certain injections, like procaine penicillin, which are drawn from a larger vial in the quantities needed).

Whichever measure is chosen to express dispensing units, it is important to note that the dispensing unit measure is always the last field printed in the drug descriptions produced by PASS. Consider for example:

PAR500T	paracetamol:PO:500MG:TAB
PAR25L	paracetamol:PO:25MG:ML

For these products, TAB and ML are the appropriate dispensing units to be recorded in the quantity field by data collectors. Paracetamol syrup can also have BOTT as the dispensing unit, if there is a standard size container that is always dispensed, but if there is ambiguity, it is safer to leave ML as the unit to be recorded. The need to focus on the correct dispensing unit when recording drug encounter data should be a key theme during the training of data collectors.

Missing Information in Drug Encounters

It is not unusual for drug encounter records to contain missing information not only about quantity dispensed, but also about drug strength or route of delivery. If quantity is missing, this field can simply be left blank when recording the encounter and the record will be excluded from calculations of dose or cost. However, if strength or route of delivery is missing, there is often uncertainty about which product code to assign to a drug.

In the description of the PASS Master Drug List above, one alternative for the handling of such missing information is discussed. The Drug Master File contains additional entries for each common route of administration where the strength per basic unit field has been left missing (displayed as "?"). These codes can then be used to record ambiguous encounter data. If the recording of quantities in a particular setting is usually complete, then these records can simply be deleted from the drug reference file.

The rules for how to handle missing information in drug encounters should be established in advance by study managers, and communicated to data collectors during training. If these decisions are left up to individual data collectors, it is likely that they will handle them inconsistently, causing bias in the study.

Coding Strengths for Combination Products

Combination drug products are somewhat difficult to accommodate in a rigidly structured drug classification system. Sometimes the separate ingredients will have different indications, making it difficult to determine the therapeutic class to which the product should be assigned. More commonly, the therapeutic class is clear, but it is unclear what to call the strength per basic unit, since the separate ingredients have different dosages. This is only a problem in PASS when analyses of dosing grouped by generic product or therapeutic class are required.

The simplest convention to handle this problem is to code the strength of the "most important" or reference ingredient in the combination drug and to list this ingredient first in the generic drug name. For example, in the combinations containing hydrochlorothiazide and another antihypertensive, the strength of the hydrochlorothiazide could always be coded by default.

This problem needs to be addressed only once by study managers when setting up the drug reference file. The decision on how to record product strength will affect only report generation and not the data collection process.

Determining Drug Costs

PASS does not assign costs to each individual drug encounter; costs of drug products are assigned only once, when the drug reference file is created. Because of this PASS cannot measure differences in purchasing efficiency of facilities, but only differences in treatment cost for different conditions and in different types of facility. Since these treatment costs are calculated using a single "average" cost, they actually measure differences in the number and choice of products prescribed.

Because the costs of drug products differ over time and from place to place, it is sometimes difficult to know which cost to enter in the rug reference file. The key is to assign costs that are consistently estimated from product to product. For example, it may be possible to assign costs as they appear on an annual drug price list. Alternatively, it may be possible to survey a number of facilities about the last unit price they paid for a list of products, and assign the average or median price across facilities as the PASS drug cost.

The Need to be Specific in Identifying Health Problems

As with drugs, it is helpful to be very specific about health problems. For example, many providers group particular sets of diarrhea-related symptoms into certain diagnostic categories, and treat them accordingly. Programs to improve these treatment practices will be most understandable to providers when they detail problem behaviors according to these diagnostic categories, and make appropriate product-specific recommendations.

Specificity in identifying health problems is often limited by disease classification systems currently used in regular reporting. Health workers will identify conditions in the categories that record-keeping systems will allow them to use. Fortunately, most disease classification systems provide a number of options for classifying diseases of different origin, although the criteria for placing a particular case in a given category will often vary from health worker to health worker, and from place to place.

Similar to the process of preparing to collect data on drugs, a detailed health problem list needs to be developed before any morbidity data are collected. All possible diarrhea classifications that might be found in the field should be specified in advance and assigned a unique code. Once this detailed list has been developed, there is the need for consistency and accuracy when assigning and recording diagnoses at health facilities, and again when these records are coded and entered into the PASS program.

Difficulties in Health Problem Classification

Health problem diagnosis and classification is an uncertain business, particularly in settings where health workers are poorly trained, diagnostic tools, such as lab tests, are limited, and the time demands of clinics are severe. In studies that depend on historical records, there is never any way of validating that health problems are accurately diagnosed by health workers.

Although this lack of diagnostic accuracy is an important problem in the management of a health system, it is of secondary importance for the purposes of a study of the treatment. The central question asked in such a study is not whether health workers can accurately determine the etiology of the health problem, but rather, given that they think the case is of a certain type, how do they treat it. For this reason, it is most import to gather enough information from the treatment record to reliably describe cases in terms of the diagnoses that care providers are making.

There are two problems that make it difficult to record and analyze data on health problems in a standardized way:

> many health problems can be referred to by terms which are used as functional equivalents, for example, "diarrhea", "diarrhea syndrome", "acute enteritis", and so forth;
>
> many health problems are treated without a formal diagnosis on the basis of signs and symptoms.

To ensure the reliability of data collection in a study of diarrhea treatment, these ambiguities need to be addressed in the health problem classification system and during training of data collectors.

In preparing the health problem list, one important step is to identify all the terms available and commonly used to describe the health problem so that they can be assigned an appropriate place in the list. Terms which are used equivalently can be assigned the same code, so that the encounters they describe will be grouped together in all analyses. Terms which are determined to represent different diagnostic entities should be given different codes, and criteria might be set up to help data collectors and coders distinguish the category to which certain cases belong.

Recorded signs and symptoms can sometimes assist in the classification of cases. However, they are often recorded very inconsistently in treatment records and so can bias analyses. It is up to study managers in a given setting to determine how many and which signs and symptoms are worth recording. For example, in some situations, it may prove instructive to collect data on whether health workers mention "dehydration", "malnutrition", or another indicator of diarrhea severity in the treatment record.

Overview on How PASS Identifies Health Problems

Assembling the health problem list required for PASS requires a certain amount of time and attention. Before beginning the process of building this list, it will be helpful to understand a few of the conventions that PASS uses to identify health problems:

> health problem name: an arbitrary name used to describe a particular diagnostic category; there can be more than one health problem name included in a health problem list to describe the same diagnostic category;
>
> health problem code: a code of up to seven characters that is used to uniquely identify a diagnostic category;
>
> health problem class: the class of health problem to which a particular diagnostic category belongs, for example, "acute watery diarrhea" and "malaria" both might belong to a health problem class defined as "infectious and parasitic diseases";
>
> health problem group: sometimes within a broad health problem class, there are certain health problem codes that belong together, for example, "acute watery diarrhea" and "shigellosis" might be two of the problem codes in a group named "diarrheal disease"; health problem group specifies a unique code of up to seven characters to identify such a group in a report.

The PASS Master Health Problem List

In order to simplify the process of creating a working health problem list in the form required, the PASS program comes supplied with a Master Health Problem List, based in part on the WHO system

for classifying diseases. This list contains over 170 entries for common health problems. The list also includes codes for some important signs and symptoms that it may prove useful to record in certain studies. In addition, the Master Health Problem List contains a default set of numeric identifying codes.

To illustrate some of these points, consider the following selected records from the Master Health Problem List:
(All the health problems listed are part of Problem Class 1, which includes all infectious and parasitic diseases.)

Problem Class	Problem Group	Problem Code	Problem Name
1	1,000	1.000	Diarrheal disease
1	1,000	1.040	Acute watery diarrhea
1	1,000	1.040	Acute enteritis
1	1,300	1.300	Malaria
1	1,600	1.600	Helminthic and worm infections
1	1,600	1.601	Parasitic diarrhea
1	1,600	1.670	Giardiasis

There are three problem groups from this class represented in this short list: diarrheal disease (identifier = 1.000); malaria (1.300); and helminthic and worm infections (1.600). A few of the separate health problem codes that comprise groups 1.000 and 1.600 are listed. Note that "acute watery diarrhea" and "acute enteritis" are considered to be synonyms for the same diagnostic category, and thus have both been assigned health problem code 1.040.

Building a Health Problem Reference File

The health problem reference file can be created from the PASS Master Health Problem List or by adapting a local health problem classification. The steps to follow in building a health problem reference file are as follows:

Assemble List of Health Problem Codes Used in Local Facilities

Before beginning to build a health problem list for PASS, assemble a list of the morbidity codes used in the health system to be studied. Such a list can often be obtained from the Bureau of Statistics of the Ministry of Health.

Additional health problems will usually need to be added to a health problem list as data are collected, or as certain conventions used by health workers become clear. The aim at this stage is not to identify these additions, but merely to assemble a list that covers the majority of health

problems to be found during the PASS study.

Decide whether to Use the PASS Master Health Problem List

Based on a comparison between the list of health problem categories assembled and the PASS Master Health Problem List, decide whether it will be more efficient to begin with the Master List and edit it, or to build the local health problem list without relying on the Master List. A new list can be built either by entering it into the PASS program health problem by health problem, or by converting an existing computerized health problem classification system to conform with the Xbase file parameters required by PASS.

Choose a Health Problem Code Classification System

If the PASS Master Health Problem List is to be the basis for assembling a local health problem list, the simplest option is to accept the default numeric health problem coding system. Alternatively, some or all records could be replaced with new entries containing locally appropriate problem names and health problem codes. these codes can be any combination of characters and numbers, but they must conform to the 8-digit limitation of PASS.

Problem groups and classes are helpful for selecting sets of cases to include in reports on drug utilization. The PASS Master Health Problem List contains health problem group and problem class codes for this purpose. As with the health problem codes, users can choose to accept these fields as the basis for problem grouping, or construct their own grouping system.

Adapt Health Problem Reference File as Needed

Once the starting health problem reference file is established, it can be adapted in the following ways (described in detail in Section 9 below):

entries can be added, to represent health problems not included in the PASS Master List (if selected as the default reference file);

entries can be modified, for example, to add health problem names in the local language, or to change health problem group or class identifiers;

unnecessary entries can be deleted, which reduces the size of the files and speeds program operations.

Add New Health Problems to the Reference File as They are Found

Once a study is underway, it is likely that additional health problems or problem synonyms will be found. Since PASS will not accept health problems in an encounter record without a corresponding code in the health problem reference file, it will be necessary as data collection proceeds to compile

a list of these additional health problems, assign them unique codes before encounter data entry, and update the health problem reference file accordingly.

APPENDIX B

UNDERSTANDING PASS DRUG CODES

APPENDIX B - UNDERSTANDING PASS DRUG CODES

PASS expects information about pharmaceutical products to be organized in a particular form. To understand the structure required, it may be helpful to see how these terms might be applied to describe examples of drug products. Consider the following generic product:

> Acetazdamide 250mg per TAB 1,000 TAB/Bottle costing
> $25.80 per bottle

The name of this generic product is "piperazine citrate"; its **strength** is 250mg/TAB, where "MG" is the strength unit, "TAB" is the basic unit, and 250 (that is, 250/1) is the number of strength units per basic unit; the route of administration is oral (which is often coded "PO"); the drug is dispensed in TAB, so the dispensing unit is a "TAB", and basic units per dispensing unit is 1; the order unit is a " TAB", and 1,000 is the number of dispensing units per order unit; the cost per order unit is $25.80, so the cost per basic unit is $0.00295.

In order to save space on screen and in reports, PASS uses shorthand notation to describe drugs. For example, this drug will appear on the screen as:

ACET250T

Note that information on order unit and cost is not included in the drug description. A drug product retains the same identity (and the same drug code) regardless of order unit or cost. In fact, this information is only used when summaries of treatment cost are desired; otherwise, it is not necessary to specify this information.

Products that are supplied in tablet form are usually relatively straightforward to identify using these conventions. Consider the branded product:

> Sumycin '250', a brand of 250mg tetracycline HCL tablets, dispensed as tablets

The name of this product is "Sumycin '250"' or more succinctly "Sumycin"' "MG" is the strength unit, while the basic unit and dispensing unit are both "TAB"; 250 is the number of strength units per basic unit, while there is 1 basic unit per dispensing unit.

In the PASS program Sumycin '250' tablets would be identified in Product Database for tetracycline under TET250T.

DRUG CODES AND THERAPEUTIC CLASSES

It would be cumbersome to record information on prescribed drugs if the entire drug description

needed to be written. Instead, for each drug product defined in the drug list, PASS expects users to specify a unique identifying code of up to 8 characters. It is these codes which are recorded in the computer when data from a sample of encounters are entered.

The user can specify any system of codes to represent drugs, so long as it requires no more than 8 characters. In general there are two basic types of drug coding systems:

> alphanumeric systems - codes can contain any combination of letters and numbers (A-Z, 0-9, decimal point);
>
> numeric systems - codes can contain numeric digits (0-9, decimal point) only

Alphanumeric codes are often more recognizable and easier for data collectors and coders to remember. For example, ORS 200ml sachets can be assigned the code ORS200, and metronidazole 5mg/ml ampoules for injection can be assigned MET5A.

A numeric system can follow a more structured hierarchical order. For example, all drugs within the same therapeutic class can share the same first 2-3 digits; drugs within the therapeutic class that share a common chemical constituent would have the next 1-2 digits in common; the next digit might be used to distinguish different routes of administration; and the final 2-3 digits might represent different product names and strengths within a given route of administration, for example, 24/9024 represents tetracycline HCL 250mg. Numeric codes are often more difficult for data collectors and coders to remember, so they can sometimes cause coding errors.

Your choice of coding system depends upon the availability of existing drug coding schemes; on the number of products available to be prescribed; and on personal preference.

The structure of PASS's system of therapeutic classification for drugs is more restrictive. Therapeutic class codes can contain only numeric digits. Each therapeutic class code can have 0-4 digits before a decimal point, and up to 2 digits after. This mean that drugs may be organized in up to 9999 therapeutic categories, and that each therapeutic category can contain 0-99 subcategories.

In addition, ATC Codes may also be used.

THE PASS MASTER DRUG LIST

To simplify the process of creating a drug list, the PASS program comes supplied with a Master Drug List. This list contains over entries for the most common generic pharmaceutical products, with separate entries for each common strength and route of administration for products with multiple presentations. In addition, the Master Drug List contains a default set of alphanumeric identifying codes (usually abbreviated characters from a drug's name, strength, and dispensing unit).

For example, paracetamol has the following entries in the Master List:

Code	Drug Product Information	
PAR100T	paracetamol:PO:100MG:TAB	
PAR325T	paracetamol:PO:325MG:TAB	
PAR500T	paracetamol:PO:500MG:TAB	
PAR25L	paracetamol:PO:25MG:ML	
PAR125R	paracetamol:RECT:125MG:SUPP	(SUPP is used for suppository forms)
PAR250R	paracetamol:RECT:250MG:SUPP	

If data on treatments are taken from existing records and not collected prospectively, it may be difficult to determine accurately all necessary information about the drugs received. One common problem is when the quantity of drug prescribed or dispensed is not recorded in the data source. For these cases, simply leaving drug quantities blank will exclude these encounters from any calculations that require them.

Sometimes data needed to identify the drug product are missing. For example, suppose that a patient is recorded as receiving "paracetamol tabs" or simply "paracetamol". In the first case, the strength of paracetamol is unknown; in the second, both the strength and route of delivery are missing. In these cases, it is necessary to classify these prescriptions so that they can be included in the analysis.

To classify drugs for which strength is missing, and to group generic equivalents across strengths in reports, the PASS Master Drug List includes additional entries. The following two entries (and codes) can represent drug encounters with unknown strengths for paracetamol tablets and suppositories respectively:

Code	Drug Product Information	
PARPOT	paracetamol:PO:?MG:TAB	("POT" in the drug code implies a tablet form)
PARRECT	paracetamol:RECT:?MG:SUPP	

Note that strength per basic unit in the drug description is left blank when the information is missing. This is also true when the route of administration, basic unit, and dispensing unit are entered in the drug list as blanks.

It would be possible to add an entry to a drug list to represent situations where only the drug name was recorded (e.g., "paracetamol"). This has not been done in the Master Drug List because it is usually possible to assign reliably a route of administration for a drug by the age of the patient or the treatment context. For example, children under three years old are usually given syrups and not tablets and capsules.

APPENDIX C

R&R INTERACTIVE QUERY

APPENDIX C - R&R INTERACTIVE QUERY

The R&R Interactive Query Mode is only available when you choose I - <I>nteractive Query from the *Want a Special Query?* option window while making your PASS reports specification choices. By defining a set of rules called a query, you can specify that only certain records will be included in a report. The query you define is used to generate a report containing only those records that meet the query criteria. The query chosen must be defined each time you wish to run a special report.

This section explains how to use the Interactive Query mode to select the composite records that will be included in a report. With this command, you can define a set of selection rules called a query. When you generate the report, R&R will include only those records that meet the selection criteria. For example, the sample query below consists of two selection rules telling R&R to select the records for the items in the Stock database with a 0 stock level.

Include all records where (the specified survey the sex of the encounter is Female is equal to "*") and where (MASTER->STOCKLEVEL is equal to "0"). Survey ID is equal to RR Passit and where Level 1-->Sex = “F”.

The first section of this appendix explains the structure of queries. The next two sections cover the Query commands:

- Edit, and
- Reset.

The final section illustrates the use of queries by offering examples of query techniques.

Query Structure

Selection Rules

Each query consists of one or more selection rules, and each selection rule consists of three elements:

- A field from the composite of record; Some reports are generated from several records found in several databases, a composite record includes all fields in all databases which are used to compile the report.

- A comparison operator such as *equal to*; and

- A comparison value, which can be a field, value, list of values, or range to which the first field is being compared.

To build a rule, you must select or enter elements using the browse menus explained in the next section. For the first element, you select a field. For the second element, you select one of the comparison operators listed in the text box below. For the third element, you specify a comparison value.

Fields

You begin to build a query rule by selecting a field from the browse menu that displays. After you've chosen to use the Interactive mode while generating your report. This menu contains all the fields from the databases used in your report. It also contains many calculated and total fields created in R&R. See the section in this appendix on query techniques for more information on calculated and total field queries.

Comparison Operators

Below is a list of the comparison operators provided by R&R. Note that these comparisons are case insensitive.

Operator	Field Is
equal to	Equal to entered value or selected field's value.
not equal to	Not equal to entered value or selected field's value.
greater than	Greater than entered value or selected field's value.
greater than or equal to	Greater than or equal to entered value or selected field's value.
less than	Less than entered value or selected field's value.
less than or equal to	Less than or equal to entered value or selected field's value.
in the range	Between two entered values or equal to either.
not in the range	Not between two entered values and equal to neither.
in the list	Equal to one of the listed values (up to 10 values).
not in the list	Not equal to any of the listed values (up to 10 values).

Comparison Values

The final step in creating a query rule is to enter or select a comparison value. Depending on the field and operator you have previously selected, the value can be:

- A field of the same data type as the first field you selected;
- A constant value such as a number or character string;
- If you have selected *equal to*, *not equal to*, *in the list*, or *not in the list*, a character string that defines a pattern using * and/or ? as wildcard characters (see the section in this appendix on query techniques);
- A list of constant values, any of which can be a character string including wildcards (see query techniques); and
- A pair of constant values that define a range.

Connectors

Selection rules can be joined with the connectors *and* or *or*. Joining two or more selection rules with *and* means that records must meet the criteria established by all selection rules in order to be included in the report. Joining selection rules with *or* means that records must meet the criteria for at least one of the selection rules in order to be included in the report.

When R&R processes a query, connectors are evaluated left to right. You can change this order of evaluation by using parentheses as described below.

Parentheses

You can use parentheses to indicate the order for evaluating connectors in a query. The connectors within parentheses are evaluated first, from the innermost level of parentheses outward, and from left to right within any set of parentheses. Without parentheses, connectors are evaluated left to right.

Query Commands

Selecting Choices from Menus

Select choices from menus by pointing to them and press <ENTER> or the right arrow <→>. Press <ESC> or the left arrow <←> to return to the previous menu or the query text.

After you have made your selections from the first three menus, a selection rule will display on the

screen, just below the Control Panel, and the Connector menu will display. Select *and* or *or* to join another selection rule; select *done* to complete the query. Selecting *done* will return you to the Query menu.

Entering a Data-Entry Choice

To enter or change a constant in the data-entry choice field in the third menu, point to the data-entry choice. Then either type a new value and press <ENTER>, or press <F2> to edit the current value. To enter a blank value, if the field is empty just press <ENTER>. To change an existing value to a blank value, press <F2>, <ESC>, and <ENTER>.

Note that character constants, which can be up to 50 characters long, should not be enclosed in quotes. For example, enter CA instead of "CA" to match a two-character field containing CA. You can enter characters in upper or lower case.

Note that when you have selected an equality comparison (*equal to, not equal to, in the list, not in the list*), you must enter the exact value you wish to match. For example, TAB matches TAB, not Tablets. For approximate matching, use wildcards as described in the section on query techniques later in this appendix.

Entering Values in a List

If you are entering a list of data-entry choices, the rules above apply, but several additional keys are active. You can press <ENTER> or <↓> to enter a value and move down in the list. Pressing <↑> will enter a value and move you up in the list. To delete a list entry, point to it and press <Del>. A list can contain up to ten entries. To enter a blank value, you must press <F2> before you press <ENTER>, since pressing <ENTER> by itself ends the list.

Entering Values to Define a Range

To enter two values that define a range, enter the first value, press <ENTER> to move to the next line, enter the second value, and press <ENTER> again. Neither value can be blank.

Joining Another Selection Rule

To add another selection rule to one you have already created, select *and* or *or* from the Connector menu and continue to define another selection rule.

Inserting Parentheses

Parentheses can be inserted in the appropriate positions as you build your query. You can type a left parenthesis while selecting a field from the first menu and a right parenthesis while selecting a connector from the Connector menu. In addition, parentheses can be inserted in an existing query by pointing to the appropriate place and typing them.

Completing a Query

When you have defined all the selection rules you want to use in a query, select *done* from the Connector menu. You will be returned to the Query menu, where you can select *Go* to complete the interactive mode process, and have PASS generate your report.

Editing a Query

When a completed query is displayed on the screen, you can edit it by selecting *Edit* from the Query menu. Point to the selection rule, connector, or parenthesis you want to change by using the keys listed below.

Key	Points to
→	Next rule, connector, or parenthesis to the right
←	Next rule, connector, or parenthesis to the left
Home	First rule or parenthesis
End	Last rule, connector, or parenthesis

After you have pointed to part of a query, you can insert, append, or delete selection rules, connectors, and parentheses. To display the query menus described above, you can press <F2> or press <ENTER>. Select or enter values as the appropriate windows display.

Inserting in a Query

To insert a new selection rule and connector before the one you have highlighted, press <Ins> and select the appropriate choices from the menus that display. Before you have made your choices, R&R displays (..) to represent a blank selection rule and .. to represent a blank connector. For example:

Include all records where (..).. (NB-Problem is equal to "2")

To insert a parenthesis, point to the place you want to insert it and type (or). Do not press <Ins>.

If you do not complete both the new selection rule and its connector, R&R deletes the blank parts when you press <ESC>. This feature prevents you from saving an incomplete query.

Appending a Selection Rule

To add a selection rule at the end of a query, press <End> followed by <→>. Then select a connector from the Connector menu. Continue the query by defining the next selection rule.

Deleting Parts of a Query

To delete part of a query, point to it and press <Del> to delete the highlighted part or <BKSP> to delete the previous part. R&R displays (..) in place of a deleted rule and .. in place of a deleted connector. Whenever you have deleted a rule and an adjacent connector, R&R removes both blank parts from the display.

Query Techniques

Summary

In addition to selecting records that match specified database field values, R&R queries can select records that match character or date patterns, total field values, and calculated field values. The sections below explain these query techniques.

Pattern-Matching

Wildcard Characters

A pattern-matching query selects all records where the value in the selected character or date field matches (or doesn't match) a pattern you enter using special characters called wildcard characters. For example, to select all records where the value in the DRUG CODE field starts with the 1, you can create the query "Include all records where (DRUG-CODE is equal to "1*")". The asterisk (*) is this query is a wildcard character that stands for any group of characters, like the asterisk in the DOS command DIR H*.DBF.

Below is a list of the wildcard characters used to define patterns in R&R queries.

Character	Meaning
?	In a character or memo query, matches any single character in the same position in the field.
*	In a character or memo query, matches any group of characters (including no characters). In a data query, matches any value in that part of the data (e.g. 1/*/90)
@	In a date query, matches any value that corresponds to that part of the system data (e.g. */@/90).

Wildcards cannot be used with numeric or logical fields.

Using Wildcards in Character Field Queries

If the comparison you have selected is an equality comparison (*equal to*, *not equal to*, *in the list*, or *not in the list*), you can use the wildcard characters * and ? to select records with character values that match the pattern you have entered. Several examples are given below:

To Include All Records	Enter
Starting with xyz	xyz*
Ending with xyz	*xyz
Starting with, ending with, or containing xyz	*xyz*
Consisting of the letter x followed by any character followed by the letter z	x?z
Containing the letter x followed by any character followed by the letter z	*x?z*

Using Wildcards in Date Queries

You can use the * and/or the @ wildcard character to enter special date selection rules. Use * in place of any part of the date, as in 12/*/90 meaning "any day in December 1990". Use @ to signify a part of the current DOS date at time of printing, as in @/15/90 meaning "the 15th of this month in 1990". It is useful to think of @ as *this* month, day, or year and * as *any* month, day, or year.

Example:

1. To select any date in 1990, enter */*/90

2. To select any date in June of any year, enter 06/*/*

3. To select the first day of any month, enter */01/*

4. To print a report for all items ordered this month, you would use the following selection rule:

   (DATEORD is equal to "@/*/*")

   This rule would include in the report only those items in which the order date field had a value of this month, any day, and any year.

5. To print a report of all new customers that you have signed up for the month, you would use the following selection rule:

   (Signup is equal to "@/*/@")

   This rule would include in the report only those records in which the Signup field had a value of this month, any day, this year.

6. To print a report of all customers who signed up in a selected year, you would use the following selection rule:

   (Signup is equal to "*/*/1990")

   This rule would include in the report only those records in which the Signup field had a value of any month, any day, in 1990.

Using Wildcards in Memo Field Queries

R&R also allows you to use wildcard characters with query equality comparisons (*equal*, *not equal*, *in the list*, and *not in the list*) to search for and select records based on text in a memo field. However, the * character must be the first and/or last character of the selection value.

For example, to include records that contain text starting with the word "Medical" in the Survey database memo field, enter the selection rule:

(Notes is equal to "Medical*")

Note that memo field queries are based only on the text of the memo field itself, not on any values contained in embedded data fields.

Querying for Wildcard Characters

You can use the backslash (\) escape character with query equality comparisons (*equal*, *not equal*, *in the list*, and *not in the list*) to select character strings that contain either the asterisk (*) or question mark (?) wildcard characters. Entered before the wildcard character in the data entry field, the backslash tells R&R to treat the wildcard character literally (i.e., not as a pattern indicator).

For example, to match records that have a value in the Name field consisting of a question mark, create the following query:

Include all records where (Name is equal to "\?")

Since the backslash is also used as a special character in query rules, you must select character strings containing backslashes in the same way. For example, * will match any string starting with a backslash.

Querying on Total Values

Total Selection Rules

R&R allows you to select records based on total field values.

- Reports without pre-processed totals can include total-related queries only on grand running sums and counts.
- Reports with one or more pre-processed totals can include total-related queries only on pre-processed totals that reset on the highest level (most inclusive) group field for which a pre-processed total has been defined.

Running vs. Pre-Processed Totals

In order to create effective total field queries, you need to understand the difference between running and pre-processed totals.

Any total field you create with the /Field Total Create command is by default a running total, a field whose value is calculated cumulatively as each record contributing to the total is read. While you can create queries using running counts and sums with a "Grand" reset level, these queries may be difficult to formulate since only those records that meet the query will contribute to the total. In addition, since R&R tests the current record against the query before computing the running total for that record, the query will be applied based on the total value as of the previous record. See the section below for an example of a running total query.

Many total fields you create can be modified with the /Field Total Options Processing command to make them pre-processed totals, fields whose final values are calculated before the records in the report are printed. Queries on pre-processed total fields are much easier to formulate, since all records that contribute to the total will be read before the query is applied.

The only restriction on such queries is that they can use only those pre-processed totals that reset at the highest (most inclusive) group level at which a pre-processed total is defined. For example, you cannot query on a pre-processed group total if your report contains a pre-processed grand total (your pre-processed grand total would be invalidated by excluding records based on the pre-processed group total). See the section below for examples of pre-processed total queries.

Pre-Processed Total Queries

In reports that contain pre-processed totals, you can query on any pre-processed total that resets at the highest group level at which a pre-processed total has been defined. You cannot query on any running totals or on any other pre-processed totals in the report.

For example, in an invoice report in which each invoice total is a pre-processed, order number group total, you could create a query that selects only those invoices with totals of $500 or more. In an order list grouped by customer number and containing a pre-processed, customer number group total, you could create a query that selects only those customers with 10 or more orders. Because of the way in which R&R accumulates pre-processed totals, none of the running totals in these reports would be available for querying. In addition, the queries on the pre-processed order and customer totals would be invalid if either report contained higher level pre-processed totals. An error message will notify you of invalid queries when you try to display or print such a report.

Running Total Queries

In reports that contain no pre-processed totals, you can query on grand running sums and counts. However, be aware that the total for the current composite record will not have been calculated before the query is applied. Therefore, R&R's decision as to whether to include the record will be based on the total value as of the previous composite record.

For example, when you query on a running count, the count for the current composite record will not have been calculated before the query is applied. In order to use the query to select the first N records, you must specify that the count field value be less than N rather than less than or equal to N.

To select the first three records using the Counter running total field, which counts the Name field, specify the following query rule:

(Counter is less than "3")

Without the query, the report would include the following contributors, sorted by contribution in descending order:

NAME	CONTRIBUTION
Warren	150
Clark	125
Mortimer	120
Smith	100
Jones	50

With the query, the records selected for the report would be:

NAME	CONTRIBUTION	COUNTER	
Warren	150	1	
Clark	125	2	
Mortimer	120	3 ←	(value of COUNTER field for this record not calculated until after query is applied)

Querying on Calculated Fields

Calculated Field Selection Rules

R&R allows you to select records based on calculated field values *except* those that:

- Use the Pageno( ) or Recno( ) function; or
- Use totals that cannot be queried on.

Comparing a Field to an Expression

You can compare a field to an expression by using a calculated field in a query. For example, to define a query that selects all records where the value in the Amount field equals the value of the expression Discount * Rate, create a calculated field name DiscRate whose expression is Discount * Rate. Then select DiscRate( ) as the value in the query, as follows:

Include all records where (Amount is equal to DiscRate( ))

Creating A Sample PASS Query

Once you have accepted your choices in the PASS Reports Specification screen, the system will automatically take you the R&R query building screen. To define a query, select *Edit* from the menu options at the top of the screen. You may then begin to build your selection rules. In the following example, the standard report, will be customized to only include those Female Encounters.

Prescribing Practices for Level 1

1. At the R&R query screen, choose *Edit*, and press the left arrow key. Select and, and press <ENTER>.

2. A small window containing a list of all fields in the database of the report will be displayed. Select the field called *Level-1 Sex* and press <ENTER>.

3. The next window that will be displayed will contain a list of options which you may use to make your comparison. Choose *equal to* and press <ENTER>.

4. The third menu that will appear contains the list of available choices needed to complete your criteria. The first choice is a blank line, type the * key and press <ENTER>.

5. To complete the query, choose *done* from the fourth menu. This will cause you to be returned to the main query menu.

Below is a copy of the screen you should see, once you have completed steps 15. Note the query statement just below the solid line. If your statement matches the one listed below, you have successfully completed the query.

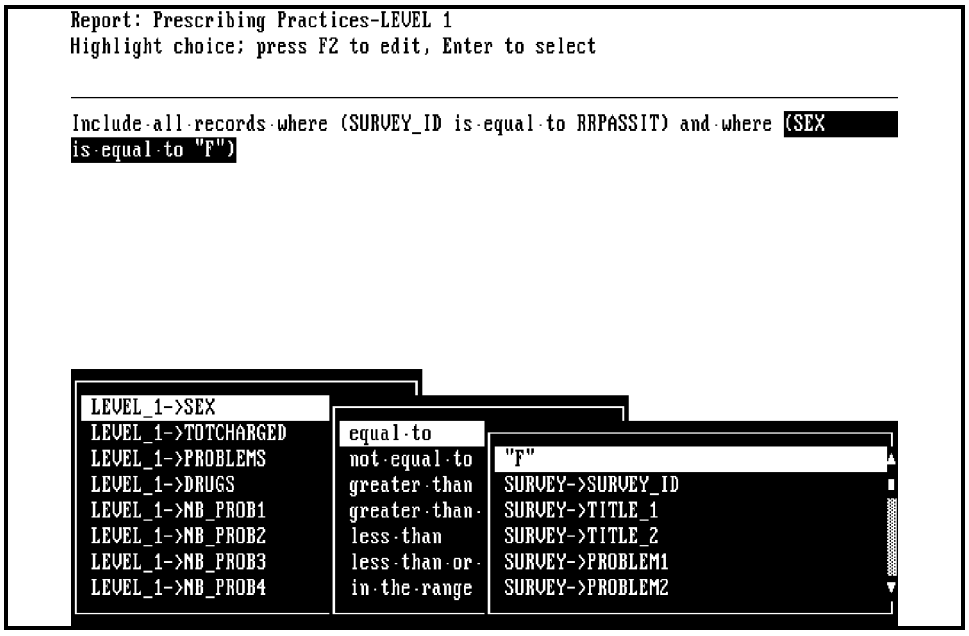

Figure C.1 R&R Interactive Query Screen

At this point, you may now generate your report by choosing *Go* from the main query menu. PASS will begin processing your query, and either display the results on your screen, or send it to your printer, depending on the options you selected in the PASS Reports Specification screen.

As you move through the list of fields in the first browse window, R&R will provide a definition of each field, in the upper left hand corner of your interactive query screen, just below the report name.

GLOSSARY

GLOSSARY

Basic Unit - Volume (or sometimes size) units in which a given drug is usually measured. For example: mg, ml, g, tab, vial, amp, supp, dose, pess.

Basic Units Per Dispensing Unit, Dispensing Units Per Order Unit - Two measures required to convert costs from cost per order unit to cost per basic unit. For example: paracetamol in 1,000-tablet bottles has 1 basic unit per dispensing unit, and 1,000 dispensing units per order unit.

Branded Drugs - Drugs that are named by a proprietary trade name, and usually sold on patent. For example: Pen●Vee K and Veetids are branded forms of generic penicillin v potassium.

Dispensing Unit - The measuring unit that describes how the basic units of a drug are customarily dispensed to the patient. Tablets are usually dispensed as tablets, while liquids may be dispensed either as milliliters or bottles. Other dispensing units include amp, vial, tube, jar, kg, inhaler, applicator, or ml.

Drug Code - Code that uniquely identifies a particular product name, strength, and route of delivery. For example: AMP250T might be used as a code to represent ampicillin 250-mg tablets.

Drug Cost Per Basic Unit - The average cost across all facilities of each basic unit of a drug, which can be used by PASS to calculate the cost of treatment. For example, bottles of 1,000 paracetamol tablets purchased for $2.88 cost $0.00288 per basic unit.

Drug Cost Per Order Unit - Average amount paid for each order unit of a particular drug, where the average applies to all facilities in a study. For example, on average during the past 2 years, a facility paid $2.88 per bottle of 1,000 paracetamol 100-mg tablets.

Drug Quantity - For an individual encounter, the number of dispensing units of a drug prescribed or dispensed. For example: 24 paracetamol tablets prescribed; 6 sachets of ORS dispensed.

Generic Drugs - Drugs that are named according to their chemical constituents and usually sold off patent. For example: paracetamol, trimethoprim sulfamethoxazole, hydrochlorothiazide.

Generic Equivalents - Drugs that are identical in chemical constituents, route of delivery, and strength, regardless of their generic or branded status. For example: Pen●Vee 250 mg tablets and penicillin v potassium 250-mg tablets are generic equivalents.

Order Unit - The volume unit in which a drug is customarily ordered or purchased by a facility. For example: bottle of pills; carton of ampoules.

Route of Delivery - Route through which the drug enters the body. For example: PO, inj, top, opht, rec, inh, iv, vag, ent.

Strength - Concentration of active ingredients as measured by the number of strength units per each basic unit. For example: 250 mg/ml injection, 500 mg tablet, 3% ophthalmic solution.

Strength Unit - The units in which the strength of a particular drug is usually measured. For example: mg, ml, IU, %.

Therapeutic Class - Theoretical groupings of related drugs, usually ones used treat similar conditions or containing related chemical constituents. For example: penicillins, beta blockers, benzodiazapines.

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